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Subject:	Q4-16 Deliverables - Email 1 of 3
Date:	Thursday, December 29, 2016 2:08:18 PM
Attachments:	image001.jpg image002.jpg image003.jpg image004.jpg image005.jpg image006.png 2016 Phase 1 Financial Plan.pdf 2016 CVPFP.pdf Q4-16 Deliverables Transmittal.doc

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Hi Juliana,

The sum of the Q4 deliverables are too large to send in one email; therefore, I'm spreading them over 3 emails. Each email will have a separate transmittal form for the included deliverables.

This first of 3 emails includes:

- Q4-16 Deliverables Transmittal
- 2016 Phase I Financial Plan
- 2016 Central Valley Project Financial Plan

If you have any questions, or something fails to open for you, please let me know.

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Save Our Water

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CALIFORNIA
High-Speed Rail Authority

Central Valley Project Financial Plan (CVPFP)

June 2016

www.hsr.ca.gov

Table of Contents

DOCUMENTS INCORPORATED BY REFERENCE

2012 Business Plan	http://hsr.ca.gov/About/Business_Plans/2012_Business_Plan.html
2014 Business Plan	http://hsr.ca.gov/About/Business_Plans/2014_Business_Plan.html
2016 Business Plan	http://hsr.ca.gov/About/Business_Plans/2016_Business_Plan.html
Funding Contribution Plan	3rd Quarter 2016 submitted to FRA
Risk Management Plan	6/4/13 version provided to FRA

Introduction

The California High-Speed Rail Authority (Authority) has prepared this Central Valley Project Financial Plan (CVPFP) in accordance with Federal Railroad Authority (FRA) terms of Cooperative Agreement FR HSR-0009-10-01-06 (American Recovery and Reinvestment Act [ARRA]) and Cooperative Agreement FR-HSR-0118-12-01-00 (High-Speed Intercity Passenger Rail Program (HSIRP) for federal fiscal year 2010 [FY10]). The CVPFP is the Authority's annual financial plan and details the funding available to construct the initial section of California's high-speed rail project in the Central Valley.

The Central Valley Project Overview

This CVPFP is being submitted pursuant to the above-referenced ARRA and FY10 grant agreements as the financial plan for January 1, 2016 through June 30, 2016. The Central Valley Project (CVP) was previously known as the First Construction Segment (FCS) of the Initial Operating Section (IOS) in the California High-Speed Rail Program's 2012 and 2014 Business Plans. In the 2016 Business Plan (2016 Plan), the Authority renamed the IOS to be constructed as the Silicon Valley to Central Valley line (Valley to Valley) which runs from north of Bakersfield to San Jose and includes the CVP. The CVP will not include a high-speed operating service; therefore, this CVPFP references the Valley to Valley section, where appropriate, to provide context within the wider program of the CVP. The map below shows the alignment of the CVP.

Previously the scope of the CVP included construction of an estimated 130 miles of civil works and track. The CVP described in this CVPFP is approximately 119 miles in length. The CVP constitutes the first leg of the Phase 1 high-speed rail program, which involves the future construction of approximately 520 miles between San Francisco and Los Angeles/Anaheim. The scope of the grant agreements includes Tasks 1-10 which are described in further detail in Section B.

ARRA and FY 10 Grant Agreement Tasks:

1. Environmental Review
2. Preliminary Engineering (PE)
3. Other Related Work Needed Prior to Start of Construction
4. Project Administration and Indirect Costs (100% complete)
5. Program, Project, and FCS Construction Management
6. Real Property Acquisition and Environmental Mitigation
7. Early Work Program (removed in Amendment 6 of the ARRA Agreement)
8. Final Design and Construction Contract Work for FCS
9. Interim Use Project Reserve
10. Unallocated Contingency

Map 1: Central Valley Project


CALIFORNIA HIGH-SPEED RAIL
Phase 1 System
San Francisco
San Jose
Gilroy
Merced
Madera
Fresno
Kings/Tulare
Bakersfield
Palmdale
Burbank
Los Angeles
Anaheim
LEGEND
Phase 1
Silicon Valley to Central Valley Line (San Jose - North of Bakersfield)
Grant Funded Construction
Proposed Station
DRAFT - SUBJECT TO CHANGE - DECEMBER 2016

Selection of the Central Valley Project

The Authority submitted applications for federal grant funds under ARRA and FY10 for four sections:

- San Francisco to San Jose
- Merced to Fresno
- Fresno to Bakersfield
- Los Angeles to Anaheim

The Central Valley sections were selected as initial construction sites and were prequalified for funding. To ensure that both federal criteria and conditions in Proposition 1A (the state's funding resources), the Authority and the FRA determined that using using ARRA funds for construction in the Central Valley would be the most advantageous financial funding strategy. ARRA funds will be used for both construction and project development activities while FY10 funds will be used for construction and program management activities.

Beginning construction in the Central Valley is an important first step for the high-speed rail system, as it will create the backbone of the statewide high-speed rail system; from there the high-speed rail will be extended north and south to complete the first true high-speed rail system in the nation.

Project History

In September 2012, the FRA issued a Record of Decision (ROD) approving the Hybrid Alternative alignment for the Merced to Fresno project section, which was selected by the Authority's Board of Directors in May 2012. The Final EIR/EIS for the Merced to Fresno project section Hybrid Alternative is available at:

http://www.hsr.ca.gov/Programs/Environmental_Planning/final_merced_fresno.html

In June 2014, the FRA issued a ROD approving the alignment for the Fresno to Bakersfield project section, which was selected by the Authority's Board of Directors in May 2014. The Final EIR/EIS for the Fresno to Bakersfield project section is available at:

http://www.hsr.ca.gov/Programs/Environmental_Planning/final_fresno_bakersfield.html

As with many projects of this magnitude, the initial implementation stages often reveal unknowns that require adjustment strategies. Some of these discoveries have worked in favor of the project and some have presented challenges. The Authority's experience with the overall delivery to date has resulted in lessons learned as well as best practices.

In 2013, the Authority initiated the competitive design-build (DB) process for the first three construction contracts for the Central Valley.

In August 2013, the Authority executed its first DB contract, known as Construction Package 1 (CP 1). CP 1 consists of a 29-mile segment from Avenue 17 in Madera south, to East American Avenue in Fresno.

In April 2014, the Authority released Request for Proposals (RFP) for Construction Package 2-3 (CP 2-3), the next 65 miles from Fresno heading south to one mile north of the Tulare-Kern County line (north of Bakersfield).

In January 2016, the Authority announced its intent to award the contract for construction on Construction Package 4 (CP 4) to a DB consortia, California Rail Builders. The scope of CP 4 will run

approximately 22 miles through the Central Valley, from one mile north of the Tulare-Kern County line to Poplar Avenue in Shafter, north of Bakersfield. The full Notice To Proceed was issued on April 15, 2016.

The official groundbreaking of construction for the Central Valley line was held on January 6, 2015 in Fresno. In the months that followed, the Authority has advanced DB, secured ROW parcels, attained permits, continued geotechnical investigations essential to structural design, demolished structures, and relocated utilities along the ROW, all in preparation for the construction of dedicated high-speed rail trackways and bridges. The CVP is anticipated to be fully operational, as part of the Valley to Valley line, by 2025.

Recent Progress

With construction work on the CVP now well underway, a comprehensive set of project management, finance, and risk reports have been developed and are updated monthly, reviewed by the Finance and Audit Committee of the Board, and posted to the Authority's website:

http://www.hsr.ca.gov/Board/monthly_fa_committee_meeting.html

Highlights of recent progress on the project include:

Construction and Project Management

The DB process and mobilization of construction crews did not progress as anticipated; however, final design for CP 1 is complete and a prioritized list of construction sites were identified in conjunction with ROW acquisitions in an attempt to recover lost time.

The cost of CP 1 is trending negatively due to three of the cost risks originally identified in the contract contingency analysis. However, CP 1 is not on the critical path for completing the construction of the entire CVP. The potential delay that was forecasted in completing CP 1 will not impact the broader schedule to complete construction in the Central Valley. Furthermore, additional contingencies for ROW acquisition and third party agreements have been allocated to the capital cost estimate. The risks, and associated mitigation measures to manage them, are described more fully Appendix 5 and 6.

The Authority has built upon this experience to improve both the management and implementation of the other construction contracts in the Central Valley. Building on the lessons learned from CP 1, the process for ROW acquisition and utility agreements have been smoother for CP 2-3 resulting in the rate of parcels acquired per month for CP 2-3 being higher than that for CP 1.

Right of Way Acquisition

The ROW acquisition process was slow to start due to litigation-related delays and required streamlining the process along with more detailed management. The high-speed rail program requires the acquisition of an unprecedented number of parcels of land associated to one project. A more efficient process was implemented that has allowed the Authority to significantly increase the rate of parcels acquired per month. The Authority is on schedule with respect to the CP 2-3 and CP 4 contracts.

As of June 30, 2016, the Authority has secured legal possession of 807 parcels with 737 delivered to the design-builder. The Authority is focused on acquisition and delivery of crucial early construction parcels through utilization of the settlement teams and partnering with the design-builders.

Third Party Agreements

Negotiations for third party agreements (railroads, utilities and others) proved to be more difficult than anticipated. Mitigation strategies were implemented successfully so that key agreements with the railroads and the utility companies (power, water and communications) were completed in order to begin construction.

LegalIn July 2014 the California 3rd District Court of Appeal ruled in the Authority's favor on two lawsuits relating to our ability to access Proposition 1A bond funds. Subsequently, in October of 2014, the California Supreme Court chose not to review the lawsuits, making the Court of Appeal decision final.

Partners

The Authority continues to work with the California Transportation Agency (CalSTA), California Department of Transporation (Caltrans), and statewide rail partners to advance potential early use of the CVP. These planning efforts are progressing to satisfy FRA's requirement for independent utility in the event the Authority is unable to fund the remainder of the Central Valley line. These efforts include identifying all elements, stakeholder roles and responsibilities, and costs necessary for an operational CVP.

Organization of the Plan

This plan is organized into five sections and incorporates six appendices, as described in the table below.

Section	Description of Contents
A: Sources of Funding	Describes the sources of funding available to the project in detail.
B: Annual Sources and Uses Projections	Presents annual sources and uses split out by task and by funding source for both construction and pre-construction/planning activities. This section also describes individual tasks in detail and provides detail around the development of cost estimates.
C: Risks	Presents the project as reported by the Authority's risk management function. Detailed risks by categorization are also provided in the appendices.
D: Operating Profile	Provides operating revenue forecasts for the Valley to Valley section.
E: Interim Use Reserves	Describes the interim use and independent utility options available to the project.

Sources of Funding

Demonstrates Authority has identified the sources of funding other than that provided through this Agreement required to complete construction of the Project and has a strategy to secure firm commitments of such funds…"fully committed" means a state legislature budget appropriation, enacted into law, with sufficient state match funding to fund, with FRA's match, the budget of the Project.

Identified Sources of Funding

The estimated capital cost of the CVP in year-of-expenditure (YOE) dollars is approximately $5.3 billion (a detailed sources and uses is contained in Section B) and will be fully funded from the following sources in compliance with the terms and conditions associated to each source.

- Federal grants authorized under the ARRA and FY 10
- State general obligation bonds authorized under the Safe, Reliable High-Speed Passenger Train Bond Act for the 21st Century (Bond Act) approved by California voters as Proposition 1A in 2008.
- State Cap and Trade funds authorized through the Budget Act of 2014 (SB 852 and SB 862)

Federal Funding Summary

The ARRA and FY 10 federal grants include $1.94 billion and $928.62 million, respectively for construction activities, totaling $2.87 billion; ARRA also allocates $610.2 million for Project Development activities such as pre-engineering and federal and state environmental approvals (e.g., PE/NEPA/CEQA[1]) associated with Phase 1 of the system, described later in this CVPFP.

State Funding Summary

Proposition 1A funds include $2.45 billion for construction activities, authorized in SB 1029. SB 1029, passed by the California State Legislature and signed by Governor Brown in July 2012, appropriates funding for the CVP, and may be used to meet the federally-required match. The appropriation includes $4.7 billion for high-speed rail connectivity, including $2.6 billion of funds for the construction of the CVP. The Authority will use Proposition 1A funds for construction of the CVP.

The Bond Act authorizes the state to issue $9.95 billion of general obligation bonds, $9 billion of which will be used to build the high-speed rail system. Proposition 1A bond proceeds currently fund the environmental, planning, engineering, and administrative operations of the Authority and will also contribute to the construction of the high-speed rail system.

[1] PE: Pre-engineering; NEPA: National Environmental Policy Act; and CEQA: California Environmental Quality Act.

The remaining $950 million authorized under Proposition 1A is allocated for capital improvements to commuter and intercity rail lines such as connectivity, preliminary engineering, ROW acquisition, and the construction of tracks, structures, power systems, and stations. Additionally, rolling stock and related equipment, as well as other capital-related facilities and equipment, are permissible expenditure purchases with these funds.

General obligation bonds are issued periodically by the State Treasurer's Office (STO). The STO uses a short-term general obligation Commercial Paper program, in conjunction with long-term general obligation bonds, in amounts necessary to meet projected cash flow needs for given projects in a timely manner.

Several conditions must be met before the STO will sell Proposition 1A bonds. The Legislature must appropriate the budget for the expenditure of the future bond proceeds. SB 1029 satisfied this condition for California's high-speed rail project. To date, the State has sold $1,084 million of Proposition 1A bonds for Authority administrative purposes and connectivity projects related to the high-speed rail project.

Proposition 1A stipulates that bond proceeds may not be used for more than 50 percent of the total cost of construction of each corridor or usable segment of the system. In addition, Proposition 1A establishes caps on the amount of funds, currently at 7.5 percent, that may be expended by the Authority for preliminary engineering, planning, and environmental studies. Proposition 1A also limits the Authority's use of bond proceeds for administrative purposes to 2.5 percent with a possible increase to 5 percent with legislative approval.

Proposition 1A establishes a multi-step process that must be completed prior to the issuance of bonds to construct the high-speed rail project. The Authority must meet pre-appropriation review requirements before the State Legislature will appropriate funds for the segment. Following appropriation, the High-Speed Finance Committee authorizes the issuance of the bonds. The Authority also must meet a pre-expenditure review requirement prior to committing bond proceeds for construction purposes.

The pre-appropriation review process is codified in Streets and Highways Code (S&H) section 2704.08(c), which requires the Authority to submit a detailed funding plan (the Funding Plan) to the Director of Finance, the independent Peer Review Group[2] and the fiscal and transportation policy committees in both houses of the State Legislature 90 days prior to submitting the initial request for appropriation of bond proceeds for construction phase costs. The detailed Funding Plan must be approved by the Authority's Board of Directors.

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[2] The Peer Review Group is established under Section 185035 of the Public Utilities Code. The Peer Review Group is comprised of eight independent members: Two individuals with experience in the construction or operation of high-speed trains in Europe or Asia (designated by the State Treasurer); two individuals with engineering and construction of high-speed trains and one with experience in project finance (designated by the State Controller); one representative from a financial services or financial consulting firm (designated by the State Director of Finance); one representative with experience in environmental planning (designated by State Secretary of Business, Transportation and Housing); and two expert representatives from agencies providing intercity or commuter passenger train services in California (designated by the State Secretary of Business, Transportation and Housing). The purpose of the Peer Review Group is to review the planning, engineering, financing and other elements of the Authority's plans and issue an analysis of appropriateness and accuracy of the Authority's assumptions and an analysis of the viability of the Authority's financing plan.

In addition, pursuant to S&H section 2704.08(d), prior to committing any bond proceeds for construction expenditure purposes, the Authority shall submit another detailed funding plan (the Expenditure Funding Plan), highlighting any changes from the original Funding Plan and meeting other statutory requirements. The Expenditure Funding Plan will be submitted to the Director of Finance and the Chairperson of the Joint Legislative Budget Committee for review and is subject to approval by the Director of Finance within 60 days.

The Authority's appropriation request for the CVP construction under the initial Funding Plan was included in the FY 2012-13 budget, in the amounts of approximately $2.6 billion in state bond proceeds from the High-Speed Passenger Train Bond Fund, in addition to approximately $3.2 billion in federal funds that have been allocated and are received under the advanced payment agreement. The Authority's appropriations also include additional state and federal funding for the pre-construction, development phase activities in other sections. The Authority's FY 2012-13 appropriations were contained in Senate Bill 1029 (SB 1029), which the Governor signed on July 18, 2012, authorizing the use of a total of $4.7 billion of state bond funds for the following rail purposes:

1. Match federal and local funds for the development and construction of the California High-Speed Rail System; and
2. Fund development and construction of other local transit improvements eligible for $2.1 billion in state funding under the Bond Act.

Prior to issuance of state bonds for project construction, the Authority must comply with the pre-expenditure review process as discussed in S&H section 2704.08(d) as noted above.

In addition, pursuant to S&H section 2704.12 and subsequent sections, the High-Speed Passenger Train Finance Committee[3] (Committee) must authorize the issuance and sale of the appropriated bonds. Once the Committee approves the issuance and sale, the State Treasurer will obligate enough bonds from future state general obligation bond transactions to meet the Authority's cash flow requirements. For more information on the provisions of Proposition 1A see Appendix 1.

The Authority works closely with the California Department of Finance (DOF) to develop cash flow projections for the Authority's funding needs. The Authority completes a biannual bond survey that is submitted to the DOF to identify its needs for bond proceeds for the next five fiscal years.

The DOF will then include the sale of general obligation bonds as part of its cash flow projections, which are submitted to the State Treasurer's Office (STO). Funding needs are then incorporated when the STO determines the timing and amount of the State's general obligation bond sales. The Proposition 1A bonds are sold as part of a combined issuance of State of California general obligation bonds for a variety of voter-approved purposes.

The STO manages the issuance of the State's general obligation financings using two tools – short-term commercial paper and long-term bonds. General obligation commercial paper has maturities of under 270 days, and long-term general obligaton bonds typically have final maturities of ten to 30 years. Commercial paper may be issued as frequently as weekly and then may be "refunded" by issuance of the long-term bonds on a less frequent basis (e.g., quarterly). In combination, these tools enable the

[3] The Committee consists of the State Treasurer, the Director of Finance, the Controller, the Secretary of Transportation and the Chairperson of the Authority. The State Treasurer serves as Chairperson of the Committee.

STO to manage its bond issuance capacity to cost-effectively meet the needs of various state programs, such as the high-speed rail program, that rely on timely receipt of bond proceeds to advance critical projects. The Authority currently has $10 million in outstanding short-term commercial paper.

In order to carefully manage the use of the State's limited Proposition 1A bonding authority, the Authority has worked with the DOF, the STO and the State Controller's Office (SCO), as needed, to further enhance and streamline cash management processes. The resulting enhancements enable the Authority's cash flow projections to take into account the overall expenditures needed, the expenditures that will be eligible for federal funds, and the receipt of those federal payments, which can provide future cash flow for subsequent project expenditures. The Authority has provided its cash flow projections through fiscal year 2015-16, and includes the funding needs for the CVP over that period. The Authority's cash flow projections are updated on a quarterly basis, to provide adequate and timely funding for the Authority's needs.

Cap and Trade Revenues

State Cap and Trade funds are authorized through the Budget Act of 2014 (SB 852 and SB 862).

In addition to the State's previous approval of funding from the Bond Act, 2014 brought a new and continuing source of expanded state funding for the program. On June 20, 2014, the Governor signed the Budget Act of 2014 (SB 852 and SB 862), which included an appropriation of proceeds from the State's Cap and Trade program to various programs and projects that will reduce greenhouse gas emissions in furtherance and accordance with AB 32, the California Global Warming Solutions Act of 2006. Specifically, SB 852 appropriated $872 million in Cap and Trade auction proceeds from the Greenhouse Gas Reduction Fund (GGR Fund) in Fiscal Year (FY) 2014-15, with $250 million going to the high-speed rail project, $25 million toward the Transit and Intercity Rail Capital Program, and $25 million toward the Low Carbon Transit Operations Program. SB 862 also appropriated $400 million to the Authority to be made available in FY 2015-16, and continuously appropriated until expended. These one-time appropriations are augmented by SB 862, known as the Cap and Trade Expenditure Plan (Plan), which established a programmatic structure for the continuous appropriation of annual Cap and Trade proceeds from the GGR Fund. The ongoing investments made by the Plan align with the investment areas identified by the California Air Resources Board's *Cap and Trade Auction Proceeds Investment Plan: Fiscal Years 2013-14/2015-16* to reduce greenhouse gas emissions that contribute to climate change and cut other forms of air pollution, particularly in disadvantaged communities. Under the provisions of SB 862 The Authority will receive 25 percent of Cap and Trade revenues on an on-going basis. To date the Authority has received the following:

- $250 million, one-time appropriation in FY14/15
- $600 million in the Governor's budget for FY15/16 based on the continuous appropriation
- $500 million in the Governor's budget for FY16/17 based on the continuous appropriation plus $100 million of a $400 million one-time appropriation, for a total of $600 million in FY16/17.

The continuous appropriation provides the Authority with the flexibility to either supplement grant funds to pay for planning and construction costs, and/or to repay loans taken out by the Authority. CVP costs that meet the conditions set out in SB 862 are eligible for the Cap and Trade funding. This funding also is available for costs of the other elements of the Phase 1 system, which may be constructed concurrently with the CVP. An extract of SB 862 is provided in Appendix 4.

Combined Funding Sources

Exhibit A-1 summarizes funding sources for Development Costs (Preliminary Engineering and Environmental Permitting) for Phase 1 of the California High-Speed Rail Program, which includes the Central Valley Project.

Exhibit A-1. Funding for Phase 1 Development Costs

Development Phase Activities for Phase 1	$'000s
Funding Sources	
FY 10 Grant Federal	$-
ARRA Grant Federal	$610,176
State Match	$364,724
Local Match	$52,100
Phase 1 PE/NEPA/Planning Costs	**$1,027,000**

Source: Submitted FCP Report June 2016 (Funding Contribution Plan)

Note: State funding sources includes Prop 1A and Cap & Trade

Exhibit A-2 summarizes funding sources for the Construction Costs of the CVP.

Exhibit A-2. Funding for CVP Construction Costs

Central Valley Project Construction	$'000s
Funding Sources	
FY 10 Grant Federal	$928,620
ARRA Grant Federal	$1,942,380
State Match	$3,109,047
Local Match	$-
Total Construction	**$5,980,047**

Source: Submitted FCP Report June 2016 (Funding Contribution Plan)
Note: State funding sources includes Prop 1A and Cap & Trade

Receipt of Firm Funding Commitments

The Authority's strategy to secure firm commitment of Proposition 1A bond proceeds for the CVP was to request appropriation of all necessary funding for the project through the state budget process in the 2012-13 budget year. The state budget process is described in detail in Appendix 2.

To secure the CVP construction funding, the Authority submitted the Initial Funding Plan and the Budget Change Proposals (BCPs) necessary for appropriation of these and other program funding requirements as part of the FY 2012-13 budget process. Ultimately, the Authority's requested appropriations for this period were contained in SB 1029, which was approved by the Legislature and signed into law by Governor Brown on July 6, 2012.

SB 1029 included the appropriation of the necessary federal and state funding for the CVP. The bill also specifies that the Authority meet a variety of reporting and review requirements over the course of the CVP and beyond including a bi-annual (due March in years when a Business Plan is not released) project update report, a staff management report, a project budget certification, and a risk analysis.

Because the Authority is simultaneously moving forward, pursuant to the Business Plan, with its plans for development of the program beyond the CVP, it also has been necessary to pursue new funding in addition to existing federal grants and state bond proceeds. As described earlier in this plan, with the enactment of SB 862, a new dedicated state funding source is available to the program through specified portions of the Greenhouse Gas Reduction Fund derived from revenues of the State's Cap and Trade Program.

Annual Sources and Uses Projections

The financial plan shall provide (in year-of-expenditure dollars) finalized annual projections for the sources and uses of all funds, during the development and construction phases of the project.

Annual Sources and Uses

The annual sources and uses of funds for the development phase for Phase 1 and construction of the CVP are set out in the Funding Contribution Plan (FCP). The FCP is provided quarterly to the FRA, as a requirement of the grant agreement, and sets out sources and uses for the Phase 1 development costs and CVP construction costs. The annual sources and uses are presented in Exhibit B-1, below, which also includes the annual sources and uses of funds broken out by Task 1 through 10 (descriptions sourced from grant agreements).

The sources and uses tables below represent historical and forecast expenditures provided to the FRA for the second quarter 2016 reporting period (FRA approved). This information has been further expanded to describe the two state funding sources that are presently available, Proposition 1A and Cap and Trade. On a periodic basis the Authority will determine what state funding will be used to match available federal grant funding to best optimize the funding plans for the entire program. This may result in changes to the makeup of state funding sources. This information will be captured in successive reports which will update the forecast use of funds and expenditures as information becomes available. The Authority will determine how it allocates state funding sources by considering all funding needs for the program and allocating them as it deems most appropriate.

Exhibit B-1. Combined Phase 1 Project Development and CVP Sources and Uses

	SOURCES AND USES ($ 000's)	Period Start Period End	1-Jul-10 30-Jun-11	1-Jul-11 30-Jun-12	1-Jul-12 30-Jun-13	1-Jul-13 30-Jun-14	1-Jul-14 30-Jun-15	1-Jul-15 30-Jun-16	1-Jul-16 30-Jun-17	1-Jul-17 30-Jun-18	1-Jul-18 30-Jun-19	1-Jul-19 30-Jun-20	1-Jul-20 30-Jun-21
Sources													
Federal:													
	ARRA	2,552,556	22,845	33,528	89,528	279,115	115,532	1,110,020	901,987	-	-	-	-
	FY 10	928,620	-	-	-	-	-	-	-	-	432,739	309,382	186,499
	Total Federal	**3,481,176**	22,845	33,528	89,528	279,115	115,532	1,110,020	901,987	-	432,739	309,382	186,499
State & Local													
	Prop 1A	3,473,771	26,432	31,509	30,419	13,697	171,330	7,641	342,294	1,680,860	993,244	99,954	76,392
	Other/Local	52,100	-	-	-	-	-	-	37,700	14,400	-	-	-
	Total State And Local	**3,525,871**	26,432	31,509	30,419	13,697	171,330	7,641	379,994	1,695,260	993,244	99,954	76,392
Total Sources		**7,007,047**	**49,277**	**65,037**	**119,947**	**292,812**	**286,862**	**1,117,661**	**1,281,981**	**1,695,260**	**1,425,983**	409,336	**262,891**
Uses													
Task 1	Environmental Review	499,535	22,347	27,097	52,537	53,609	25,497	58,790	141,227	118,432	-	-	-
Task 2	PE 15% and 30% Design	337,362	26,314	33,525	42,068	45,317	10,744	53,459	61,658	64,276	-	-	-
Task 3	Other Related Work	189,426	616	4,415	25,342	13,437	(4,437)	5,994	88,731	55,328	-	-	-
Task 4	Project Administration (SWCAP)	678	-	-	-	660	18	-	-	-	-	-	-
	Pre-Construction Subtotal	1,027,000	49,277	65,037	119,947	113,023	31,822	118,242	291,616	238,036	-	-	-
Task 5	D/B Program Management	419,227	-	-	-	41,605	57,537	111,296	75,451	98,166	35,171	-	-
Task 6	Real Property Acquisition	852,274	-	-	-	74,367	116,264	300,990	250,176	104,478	6,000	-	-
Task 7	Early Work Program (2009 ARRA 50/50)	-	-	-	-	-	-	-	-	-	-	-	-
Task 8	D/B Contract Work	4,432,352	-	-	-	63,818	81,238	533,278	664,738	1,254,580	1,384,812	409,335	40,554
Task 9	Project Reserve	208,147	-	-	-	-	-	53,856	-	-	-	-	154,290
Task 10	Unallocated Contingency	68,047	-	-	-	-	-	-	-	-	-	-	68,047
	Construction Subtotal	5,980,047	-	-	-	179,790	255,040	999,420	990,365	1,457,224	1,425,983	409,335	262,891
Total Uses		**7,007,047**	**49,277**	**65,037**	**119,947**	**292,813**	**286,861**	**1,117,662**	**1,281,981**	**1,695,261**	**1,425,983**	409,335	**262,891**

Source: Submitted FCP Report June 2016 (Funding Contribution Plan)
Note: Prop 1A funding sources include Cap & Trade
Note: Small differences in sources and uses totals may occur due to rounding

Description of Tasks for the High-Speed Rail Program

The Project Development phase of California's High-Speed Rail Program consists of four major tasks in the Authority's grant agreements; each task is included as part of the Phase 1 program in each of the eight sections of the system referenced below.

Project Section
San Francisco - San Jose
San Jose - Merced
Merced - Fresno
Fresno - Bakersfield
Bakersfield – Palmdale
Palmdale – Burbank
Burbank – Los Angeles
Los Angeles - Anaheim

The four major tasks are presented below:

Task 1 – Environmental Review. The environmental review process is being conducted in accordance with the requirements of the National Environmental Policy Act (NEPA), the California Environmental Quality Act (CEQA), Section 106 of the National Historic Preservation Act, Section 4(f) of the Department of Transportation Act (49 U.S.C. 303), and other applicable environmental laws and regulations (collectively NEPA/CEQA). FRA is the federal lead agency responsible for NEPA compliance, and the Authority is the state agency responsible for CEQA compliance. To satisfy both NEPA and CEQA, a combined environmental document is prepared—EIR (Environmental Impact Report) for CEQA and EIS (Environmental Impact Study) for NEPA. The combined environmental document are referred to as EIR/EIS. The Authority has eight project-level EIR/EIS studies under way for Phase 1 of the system, two of which are supplemental EIR/EIS to the already approved Records of Decision for Merced to Fresno and Fresno to Bakersfield.

Task 2 – Preliminary Engineering (PE)***.*** The Authority, in coordination with the FRA, is completing PE for all Phase 1 sections described above. The Authority, with assistance from their rail delivery partner, conducts ongoing oversight of the Regional Consultants (RCs) performing the work. The RCs are guided by design criteria set forth in the technical memoranda for the system. Design consistency will be achieved by adherence to the design criteria as they develop preliminary engineering for procurement (and additional design work for discrete areas as needed and agreed to by FRA).

Task 3 – Other Related Work Need Prior to Start of Construction. In addition to the Environmental Review (Task 1) and Preliminary Engineering (Task 2) described above, the Authority will also complete the additional work required prior to start of construction, including ROW acquisition support, ridership forecasting, and construction planning/procurement support. For portions of the high-speed rail line where a defined general alignment has been selected, the RC will conduct assessments to identify segments at risk of imminent development, or other changes in use that could significantly increase implementation costs. The RC will develop recommendations for protective advance acquisition consistent with state and federal requirements, and will perform necessary coordination with other federal, state, and local agencies and assist the Authority in making acquisitions to the extent such acquisitions have been approved and authorized by the Authority. As requested by the Authority, the RC will provide assistance in reaching agreement on terms of access to shared ROW with rail line owners and operators, shared capital and operating costs, types of improvement required to maintain existing

operations while allowing high-speed train operations, and other critical matters such as liability indemnification, insurance requirements, and other operational matters. This work may include participating in ROW negotiations between BNSF and UPRR. Station area planning is included in this task to be initiated concurrent with Task 1 and would continue past the start of construction. High-speed rail investments in Southern California, as well as development and implementation of a small business program, which will continue past construction, also are included in this task.

Task 4 – Project Administration and and Statewide Cost Allocation Plan (SWCAP). The grant agreements permit the Authority to seek reimbursement for administrative costs, as well as costs incurred from other state agencies that provide services to the Authority (e.g., the DOF, the Department of General Services, and the Department of Justice). Task 4 has been completed and is closed.

The Construction phase of the project consists of six tasks:

Task 5 – Program, Project, and FCS Construction Management. This includes management, oversight, and reporting of all tasks necessary to complete the project, including coordination with appropriate local, regional, state, and federal agencies, railroad owners and operators within the project area, and outreach to local communities affected by the project. Specific construction management activities will include contract administration, submittal review, quality assurance inspection, materials inspection, management of claims and change orders, and review and approval of progress payment requests and final acceptance of the work. The Authority is also responsible for public communication and outreach to citizens, communities, and stakeholders during all aspects and phases of project design and construction.

Task 6 – Real Property Acquisition and Environmental Review. This task includes real property acquisition and associated activities that are not already covered under ROW Acquisition Support of the PE/NEPA/CEQA phase of the program. As of June 30, 2016, the Authority has secured legal possession of 807 parcels with 737 delivered to the design-builder. ROW estimates were developed in accordance with the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 as amended (Title 42, sections 4601-4655, of the United States Code) (Uniform Act), and its implementing regulations, Title 49, Part 24, of the Code of Federal Regulations. Any and all eminent domain acquisitions will be subject to State of California Civil Procedure. Acquisitions include ROW for track alignment and stations consistent with project requirements.

ROW estimates were prepared on a parcel by parcel basis considering the estimated real estate values of the impacted property, and include other compensatory factors as applicable, such as estimates of loss of business goodwill, relocation assistance, title/escrow costs, and property owner appraisals. The estimate also includes a 30 percent contingency. The actual expenditures will be based on approved appraisals and may include settlements through negotiations, deposits for court-ordered possession, litigated settlements and/or trials. Each of these activities will be subject to a stringent review/approval process to ensure the fair, equitable treatment of property owners and the appropriate use of public funds.

Task 7 – Early Work Program. The Early Work Program included planning, design, coordination, negotiation, legal activities, as well as construction, land acquisition, implementation costs associated with utility relocation, site clearing/demolition, railroad track relocation, highway/roadway relocation/grade separations, environmental remediation/hazardous materials disposal, and environmental (NEPA/CEQA) mitigation. Activities in this task were redistributed among other tasks with Amendment 6 to the ARRA grant.

Task 8 – Final Design and Construction Contract Work for FCS. As currently envisioned, final design and construction contract work will be covered by up to four separate geographically-based design-build infrastructure contracts and at least one DB track-work contract.

Task 9 – Interim Use Project Reserve. This funding is sourced through the FY 10 grant and is reserved for future contingency purposes and requires FRA pre-approval prior to expenditure. The high-speed rail project is not yet at a point in time to include discussion on this Task in the CVPFP.

Task 10 – Unallocated Contingency. The Authority has allocated approximately 1 percent of the project budget as unallocated contingency. The Unallocated Contingency has yet to be allocated to specific tasks. The use of contingency funds will be described in a future Contingency Management Plan.

Development of Cost Estimates

The cost estimates summarized above in Exhibit B-1 are based on site-specific route alignments developed during Preliminary Engineering. The methodology for preparing estimates has been applied to both the CVP and the full Valley to Valley line of which the CVP is a part. Although the costs for improvements have been calculated and reviewed, they are subject to changes in economic conditions that occur over time and affect actual prices, either positively or negatively. The cost estimates are the product of two key items described below:

Quantities—This is the quantity of materials required to construct the project's key elements. The materials quantity depends greatly on the ground conditions where the project will be built, land use and availability, geotechnical conditions, community and stakeholder impacts, and environmental challenges requiring realignment or special designs. These factors are highly site-specific and subject to significant change during the environmental process and as communities participate in key decisions. The FRA established standard cost categories (SCCs) that must be included in a cost estimate for federally funded rail projects. The standard categories are as follows:

- 10 - Track structures and track
- 20 - Stations, terminals, intermodal
- 30 - Support facilities; yards, shops, administrative buildings
- 40 - Site work, right-of-way, and existing improvements
- 50 - Communications and signaling
- 60 - Electric traction
- 70 - Vehicles
- 80 - Professional services
- 90 - Unallocated contingency
- 100 - Finance charges

It should be noted that not all of the above cost categories apply to the CVP. The CVP does not include elements that would be required for passenger service; however, would be added at the point of expansion to an initial operating section[4], which is the subject of Section D of this CVPFP.

[4] Per the requirements of the grant agreements with FRA, if the Central Valley line is not possible to fund by the time construction in the Central Valley is complete, the Authority will work with Cal STA, Caltrans and the

Composite unit prices— These are the prices associated with labor, equipment and materials necessary to construct a discrete element of high-speed rail system (i.e. elevated guideway, tunnel, station, systems component, etc.). These composite unit prices are measured in "route miles" or "each" and some such as stations or electrical substations may be quite complex and may include dozens of elements, each of which must be separately priced. The prices also must reflect the specific market for each product and material, such as the underlying commodity and labor costs, at the time anticipated for procurement. Composite unit prices for more than 300 separate cost items have been developed for the cost estimates.

Within the reporting period of this document, two DB contracts have been awarded: Construction Package 1 (CP 1) and Construction Package 2-3 (CP 2-3). In addition, advancement of final design on CP 1 added insight into contractor's construction methodologies, allowing refinement of estimating assumptions applied to other project sections as appropriate. Evaluation of the competitive bid environment has led to an assessment of cost factors such as contractor's indirect costs and margin markups, further refining underlying assumptions used in development of composite unit prices.

statewide rail partners to ensure use of the infrastructure, by appropriately planning the necessary actions. The decision of early use will be jointly made among FRA and the state of California.

Risks

A detailed assessment of the risks facing the Central Valley Project during the construction (including risks such as capital cost overruns, revenue shortfalls, and maintenance cost overruns), along with proposed actions for mitigating or accommodating such risks (including assessment of additional funding sources available to compensate for potential capital financing shortfalls)

The Authority is committed to providing a successful high-speed rail system that meets and/or exceeds the expectations of elected officials, community stakeholders and the public at large. Accordingly, the Authority recognizes that effective management of risks is one way to significantly increase the chances of delivering a successful program and has developed a Risk Management Program for this purpose.

Risk Management and Project Controls Office

The Risk Management and Project Controls Office identifies key risks and respective mitigation plans, and prioritizes actions. These items are documented in the Program Risk Register, which is continually updated, reviewed with management at stipulated intervals, and used as the basis of reporting.

The Risk Management Program's objectives are to:

- Codify the process by which the Authority responds to circumstances that could significantly delay or halt progress
- Increase transparency regarding challenges to project plans and objectives
- Capture project opportunities
- Satisfy legal and regulatory requirements and meet the needs and expectations of other stakeholders
- Rationalize allocation of resources including cost and schedule contingencies
- Assist in the preparation and implementation of risk mitigation plans for the identified program-wide risks

A revised Risk Management Plan (RMP) was finalized on June 4, 2013 and provided to FRA. This RMP updated and formalized procedures for identifying, assessing, evaluating, documenting, and managing risks that may eventuate in the project. These include specific engineering, environmental, planning, ROW, procurement, construction, organizational, stakeholder, budget and schedule risk, and any other potential inabilities to deliver the required results.

In furtherance of the above objectives, the RMP provides the following:

- A comprehensive RMP that defines roles and responsibilities for risk management and addresses the process by which the authority will identify and quantify project risks, implement and track risk response activities, and monitor and control risks throughout the duration of each project.
- Quantification of the effect of identified risks in financial terms.

- Development of documents to track identified risks and related mitigation steps.
- Plans for regularly updating its estimates of capital and support costs.
- Plans for regularly reassessing its reserves for potential claims and unknown risks, incorporating information related to risks identified and quantified through its risk assessment processes.
- Plans for regularly integrating estimates for capital, support costs, and contingency reserves in required report.

The RMP also defines standards for risk management deliverables that is part of the approval process:

- Deliverables are presented within a substantively complete and appropriate engineering or project management context.
- Deliverables are appropriately quantified, fully integrated, traceable and consistent, and compatible with findings or stated facts.
- Where risk management deliverables are qualitative in nature, they are properly structured and clearly identified with respect to authorship.
- Material analytic results of risk analysis are capable of independent analysis or reproduction using established methods and assumptions generating similar analytic results within an acceptable degree of imprecision or error.
- Funding agencies are able to assess whether it is appropriate to question the adequacy, accuracy and completeness of the third party data, information, modeling or analysis.

The RMP defines the Authority's risk management policy, the processes to be used to execute the Risk Management Program effectively and the means to judge the quality of its deliverables.

In addition to the 2016 Business Plan and Risk Management Plan that have been previously provided to FRA and incorporated by reference, Appendix 4 includes a matrix of funding risks and top risks as requested by FRA.

2016 Risk Management Overview

The Risk Management and Project Controls Office has a direct reporting relationship established with the Board of Directors. This direct reporting enables daylighting to the risk management approach and encourages informed decisions.

The key risk areas that the Authority has identified and manage on an ongoing basis vary based on the individual section's design or construction phase. An overview of the most significant risks identified are below. (The Authority has adopted management strategies and mitigations to address these risks.)

- **Program Risks**
  - Financing and Funding
  - Legal and Litigation
  - Decline in Stakeholder Support
  - Ridership and Revenue
  - Operations and Maintenance
  - Capital Rehabilitation and Replacement Costs Differ from Forecasts

- **Construction Risks**
  - Right of Way Acquisition Delays
  - Environmental
  - Third Party Agreements
- **Technical Risks**
  - Engineering and Environmental
  - Alignments Passing through Energy Project Areas
  - Availability of Traction Power Substations to Supply Power for Operations

The Authority performed the pre-bid schedule and cost risk analyses for each of the construction packages. The identification of major risks and contingency recommendations in these pre-bid analyses were validated by the eventual contractor's scope and schedules. Decision making is based on a data-driven analysis approach. For example, the probabilistic analysis performed on the containment of railroad intrusion protection barrier walls provided the Authority, the FRA and adjacent railroads an additional mechanism to make informed decisions.

2016 Risk Management Trends

The Authority has identified various trends, both positive and negative, to the program cost and schedule milestones including, but not limited to, the following:

- The ROW parcel acquisition risk analysis performed on the ROW acquisition forecast identified potential delays to our schedule. Reviews highlighted the need for early identification and mitigation of actual right of way risks as well as other project risks. An alternative forecast was developed to reflect potential delays that were outside of the Authority's control and were more in line with recent trends.
- The cost risk analyses for CP 1 illustrates cost overruns in three of the risk areas originally identified in the CP 1 contract contingency analysis. These particular cost risks relate to intrusion protection and other requirements requested by the adjacent railroads, relocation of utilities, and ROW acquisition. The updated cost risk analysis for CP 1 indicates the potential to exceed the current contingency level for the contract.

Silicon Valley to Central Valley Costing Methodology

The Finance Plan(s) shall document projected capital and operating costs and revenues, and detail key assumptions and methodologies.

In the 2016 Business Plan (2016 Plan), the Authority renamed the initial operating section of high-speed rail, to be constructed, as the Silicon Valley to Central Valley line section (Valley to Valley). The CVP is not contemplated to have ridership, instead it will be used as a test track while the remainder of the Valley to Valley section is being completed. Information relating to the Valley to Valley section is included to provide greater context for the CVP and demonstrate operational viability.

The 2016 Plan informs that high-speed rail operations are now planned to commence on the Silicon Valley to Central Valley line (including the CVP) as part of a sequenced approach to completing Phase 1. Over the past two years circumstances have changed, requiring a new approach and revision to the IOS plan. Most significantly, there is a combination of existing funding sources that allows the Authority to deliver high-speed service within the next 10 years. It is the Authority's statutory and fiduciary responsibility to utilize available funding in the most efficient and productive manner, and focus those resources on a segment that can be built within the limits of available funding. To do otherwise would mean that the State would be left with a segment that would not be complete, could not meet the statutory requirements, and/or that would not generate private sector participation.

In making this evaluation, the Authority took into consideration all of the requirements of Proposition 1A, particularly building to a standard that can meet travel speed, travel time, and other design criteria, and generating sufficient fare revenues to cover operating costs. The Authority matched the projected funding level against updated capital cost figures, and determined that a connection between the Silicon Valley (San Jose) and the Central Valley (at the existing Construction Package 4 (CP 4) southern construction terminus north of Bakersfield) meets all essential and relevant requirements and can be built with available funding.

The Authority will be building the initial Valley to Valley line with existing and allocated resources. This approach is consistent with Authority principles and overarching objectives. Moving forward, the Authoirty will continue to evaluate new opportunities to fund, build, and bring into service the remaining segments as soon as possible.

The Valley to Valley line will provide a one seat ride from San Jose to north of Bakersfield and is described in full in the 2016 Business Plan.

Forecast Methodologies

This section describes methodologies used to produce the Authority's forecasts for revenues, operating costs and capital maintenance (lifecycle) costs. The descriptions of these methodologies have been directly sourced from the 2016 Business Plan Section 5: Capital Cost Estimates, and Section 7: Forecasts and Estimates. Since the 2014 Business Plan, the Authority has refined its forecasting methods and tools for ridership, revenue, O&M costs and lifecycle costs in its 2016 Plan. There are two new sets of forecasts and cost estimates included below based on the 2016 Plan:

Valley to Valley Line - One scenario assumes that operations begin from San Jose to a station north of Bakersfield in 2025 (construction completed in 2024) and on the entire Phase 1 system from San Francisco and Merced to Los Angeles and Anaheim in 2029.

Valley to Valley Extension - A second scenario evaluates the change in all forecasts and cost estimates if the Valley to Valley segment is extended to San Francisco and Bakersfield. This scenario also assumes operations starting in 2025 and the Phase 1 system opening in 2029. The electrification of the peninsula corridor will allow high-speed rail trains to travel on existing tracks between San Jose and San Francisco with relatively minor initial investments. Additionally, an extension south from CP 4 to downtown Bakersfield will strengthen the connection to an important economic center and transportation hub. Together these extensions would provide a one-seat ride from Bakersfield to San Francisco.

Capital Cost Methodology and Refinements

Lessons learned from various construction package bids received by the Authority have been used to refine the Authority's cost estimate methodology. The best value bids for CP 1 through CP 4 were between 13 and 45 percent below engineer estimates. The differences between Authority estimates and final contractor bids include:

- The Authority adopted a conservative estimating approach to develop the construction cost estimates: bidders could propose Alternative Technical Concepts (ATCs) that were not included in engineer estimates; hence, bidders could reduce contingency levels that were assumed in engineer estimates.
- Favorable economic conditions in the state: after a significant economic slow-down during the recession, the construction market began to gain momentum and is better positioned to support large projects.
- Healthy, competitive environment in the industry: There was strong interest in the industry to be part of the construction of the first high-speed rail system in the country. The prestige attached to the high-speed rail program contributes to industry interest and increases competition for the contracts. The Authority received three or more bidding consortia for each procurement which contributed to driving the price down.
- Construction contracts in the Central Valley do not incorporate a high level of risk: The first three construction contracts are civil packages with little integration and technological risk.
- Significant updates and revisions to the system construction cost estimates have been made based on new technical concepts and a better understanding of the private sector's approach to pricing the project.
- New technical concepts were introduced in the design of the system which has driven overall estimated construction costs down: The Authority's procurement process provides that the state will own the intellectual property of all bidders, whether they win or not; the Authority has applied some of the bidders' suggested innovations to subsequent analysis of construction costs.
- Overall system costs also have been refined based on a wide range of information from the industry including risk integrated pricing techniques: CP 1 and CP 2-3 resulted in a better understanding of the level of competitive pricing. Also, the Authority refined the schedules and the way construction can be operationalized. These ongoing project experiences provided valuable sources of information to refine and drive down costs for the rest of the system.

Updated 2016 Revenue Forecast Methodology

Ridership and revenue forecasts in the 2016 Plan reflect an enhanced travel demand model and changes to some key assumptions. The differences between the forecasts presented in the 2014 Business Plan and the forecasts presented in the 2016 Plan include:

- The 2016 Plan presents service starting on the Valley to Valley line from San Jose to north of Bakersfield (to an interim facility that functions as a temporary station) and evaluates an additional scenario extending service to San Francisco and Bakersfield that had not been analyzed in the 2014 Business Plan.
- The 2016 Plan also plans for a Phase 1 system that offers a one-seat ride extending to Anaheim; ridership and revenue forecasts in the 2014 Business Plan assumed a Phase 1 southern terminal in Los Angeles.
- New forecasts reflect an enhanced travel demand model that incorporates the latest available input data, new variables that better reflect travel behavior, and adjustments to the transit access network and station locations.

The above changes and model enhancements result in a Phase 1 ridership increase of approximately 25% depending on the forecast year.

The ridership risk analysis considers new risk variables and was conducted separately for each model analysis year and system implementation assumption (Valley to Valley line and Phase 1).

At the same time, many elements of the 2016 ridership forecasts remain consistent with the 2014 Business Plan:

- High and low ridership forecasts were developed through a rigorous risk analysis that provided a forecast range and associated probabilities for each business plan scenario through Monte Carlo simulations. The risk analysis model includes a range of assumptions relating to various risk factors having the greatest combination of uncertainty and impact on the results.
- The ridership forecasts employ the same ramp-up methodology as the 2014 Business Plan, which assumes 40% ramp-up in year one, 55% ramp-up in year two, 70% ramp-up in year three, 85% ramp-up in year four and 100% ramp-up in year five. Separate ramp-up calculations are applied to each phase based on its assumed opening date. For more information on the ridership and revenue forecasts, please refer to the 2016 Business Plan Technical Supporting Document: Ridership and Revenue Forecasting.
- Farebox revenue forecasts in the 2016 Plan reflect the same enhanced model and revised assumptions used to estimate ridership. These changes have a similarly positive effect on estimated revenue for the Phase 1 system. As a result of the changes above, the Phase 1 revenue forecast increases by approximately 35% over the 2014 Business Plan revenue forecast, depending on the forecast year.
- Revenue forecasts in the 2016 Plan incorporate the same ramp-up methodology as ridership and as the 2014 Business Plan. The cash flow analysis assumes 1% additional ancillary revenue. The same risk analysis employed to provide a forecast range for ridership and associated probabilities also applies to revenue projections.

In addition, the 2016 Plan provides updates to the methodology as set forth below.

Updated 2016 Operations and Maintenance Forecast Methodology

The 2014 Business Plan operations and maintenance cost model was developed using guidance from the U.S. Department of Transportation Inspector General, and feedback from international high-speed rail subject matter experts at the International Union of Railways (UIC).

The 2016 Plan operations and maintenance cost estimates were derived by building on the 2014 cost model forecasts with minor adjustments based on new information and refined assumptions. All model assumption changes were reviewed and verified by Network Rail Consulting, the operator and maintainer of both the high-speed and conventional rail network infrastructure in the United Kingdom, to ensure international best practices are maintained in the forecasts.

The model adjustments had a minimal overall effect on operations and maintenance cost projections, but phasing changes have a more significant impact on operations and maintenance cost forecasts.

The 2040 out-year forecasts in this 2016 Plan are within ~5% of the 2014 Business Plan projections, as the changes have minimal net effect on operations and maintenance costs for the Phase 1 system.

As in 2014, the Authority conducted a Monte Carlo simulation to understand the risks and uncertainties associated with the forecasts and created a forecast range with associated probabilities of occurrence. The high and low operations and maintenance cost forecasts in the exhibits below reflect the results of these Monte Carlo simulations.

Throughout the high-speed rail system there will be a variety of facilities built to support high-speed rail service. These facilities include heavy and light maintenance facilities to service trains, stations, maintenance of infrastructure facilities, a dispatching center and headquarters. The various operational and maintenance functions will create permanent jobs and the facilities will be located at various points along the corridor to meet the system needs. The Authority anticipates the following types of positions for each facility type:

- Stations – station managers, ticket agents, passenger assistance representatives, facility maintenance managers, station cleaners, train cleaning staff, police and security.
- Maintenance of Infrastructure Facilities (throughout the state) – inspectors, heavy equipment operators, laborers, mechanics, truck drivers, welders, track engineers, track maintainers, signal engineers, signal maintainers, communications engineers, systems engineers, wire-men, electricians and supervisory and support staff.
- Heavy Maintenance Facility (in the Central Valley) – mechanical technicians, electrical technicians, supervisors, laborers, cleaners and store-house employees.
- Light Maintenance Facilities (Northern and Southern California) – similar personnel positions to the heavy-maintenance facility but a smaller workforce .
- Operations Control Center (in the Central Valley) – operations directors, managers, dispatchers, supervisory and support staff. Train crew assignments will be dictated from this location and some train crews will report to this location. Train crews (engineers, conductors, assistant conductors and on-board attendants) will also report in other locations where trains start up service.
- Headquarters (Central Valley) – The railroad executive and corporate organizations will be housed at this location. The executive and corporate workforce will include operations, safety, legal, finance, human resources, contracts, planning, systems and information technology and public affairs and marketing professionals.

Updated 2016 Lifecycle Cost Estimates

Lifecycle costs forecast the capital rehabilitation and replacement costs for the infrastructure and assets of the high-speed rail system. Differences in lifecycle costs between the 2014 Business Plan and the 2016 Plan reflect changes in capital cost estimates and minor adjustments to some asset lifespans. All model assumption changes were reviewed and verified by Network Rail, the operator and maintainer of both the high-speed and conventional rail network infrastructure in the United Kingdom, to ensure international best practices are maintained in the forecasts.

Lifecycle costs differ between the Valley to Valley and the Valley to Valley Extension scenarios because the extensions to San Francisco and Bakersfield that open in the earlier years in the Valley to Valley Extension scenario create additional lifecycle costs. This impacts the recurring rehabilitation and replacement costs that accumulate on those segments.

Similar to the operations and maintenance and revenue estimates, a Monte Carlo analysis was developed to evaluate a potential range of lifecycle cost forecasts shown in the exhibits below. The Monte Carlo methodology employed in 2014 applies also to the 2016 analysis. For more information on the lifecycle cost model, please refer to the 2016 Business Plan Technical Supporting Document: 50-Year Lifecycle Capital Cost Model Documentation.

2016 Updated Operating Forecast

As described above, the revenue and cost projections for the 2016 Plan are updated as a result of enhanced models, and have undergone risk analyses to confirm their reliability.

A breakeven analysis has been conducted on the Valley to Valley line from San Jose to north of Bakersfield, and on the Phase 1 system. The breakeven analysis performed considers farebox revenue only.

The Monte Carlo risk analysis performed on the system breakeven provides state-of-the-art statistical support for the projections that the system will perform at or above its breakeven point and will not require an operating subsidy. The analysis results in a 32% probability that the Valley to Valley line will reach its breakeven point in the opening year but this probability increases quickly as the system ramps up. It is anticipated that the system begins to cover annual operating costs in Year 2 and recoups the first year loss by Year 3 (in the Medium case).

The quantitative risk analysis also results in a 69% probability that the Valley to Valley line will reach its breakeven point over the initial ramp-up period and a greater than 99% probability that the Phase 1 project will do the same over the analysis period through 2060.

To mitigate the risk that the breakeven point may not be achieved as soon as projected, the Authority has a number of contracting strategies that will place on other parties the contractual responsibility to cover any early year losses based on revenues exceeding costs in later years. This approach will ensure that there will not be a time that the Authority will have to provide a subsidy to an operator.

Exhibits D-1, D-2 and D-3 below show net cash flow from operations for the first five years of system operation during which time the Valley to Valley line ramps up to full operations. The high, medium and low scenarios illustrate that the system can be operationally self-sustaining and not require an operating subsidy during either the five-year ramp-up period, or as it reaches maturity. The high scenario is projected to have positive cash flow in the first year of operations. The low and medium scenarios are projected to reach an annual positive cash flow during year two and three, respectively.

Exhibit D-1. Silicon Valley to Central Valley Line Net Cash Flow from Operations - High Scenario

Summary of Net Cash Flow from First 5 Years of Operations: San Jose-North of Bakersfield (Silicon Valley to Central Valley Line) Through Phase 1, High Scenario (In Million of YOE$)					
	2025	2026	2027	2028	2029
Revenues (Including Farebox, Ancillary and Bus)	$360	$510	$668	$836	$2,222
Less: O&M	($331)	($377)	($424)	($473)	($1,196)
Net Cash Flow from Operations	**$28**	**$133**	**$245**	**$363**	**$1,026**

Source: California High-Speed Rail Program 2016 Business Plan, pg. 95

Exhibit D-2. Silicon Valley to Central Valley Line Net Cash Flow from Operations - Medium Scenario

Summary of Net Cash Flow from First 5 Years of Operations: San Jose-North of Bakersfield (Silicon Valley to Central Valley Line) Through Phase 1, Medium Scenario (In Million of YOE$)					
	2025	2026	2027	2028	2029
Revenues (Including Farebox, Ancillary and Bus)	$254	$ 361	$473	$592	$1,671
Less: O&M	($303)	($344)	($387)	($432)	($1,093)
Net Cash Flow from Operations	**$(48)**	**$16**	**$86**	**$159**	**$578**

Source: California High-Speed Rail Program 2016 Business Plan, pg. 95

Exhibit D-3. Silicon Valley to Central Valley Line Net Cash Flow from Operations - Low Scenario

Summary of Net Cash Flow from First 5 Years of Operations: San Jose-North of Bakersfield (Silicon Valley to Central Valley Line) Through Phase 1, Low Scenario (In Million of YOE$)					
	2025	2026	2027	2028	2029
Revenues (Including Farebox, Ancillary and Bus)	$199	$281	$369	$462	$1,307
Less: O&M	($290)	($330)	($370)	($414)	($1,047)
Net Cash Flow from Operations	**($91)**	**($48)**	**($ 1)**	**$48**	**$259**

Source: California High-Speed Rail Program 2016 Business Plan, pg. 95

Full detailed cash flows for each scenario are located at:
http://hsr.ca.gov/docs/about/business_plans/2016_Business_Plan_High_Medium_Low_Cash_Flows.pdf

Interim Use Reserves

The Finance Plan(s) shall address the financial soundness of the reserve scenario in the event the state of California pursues early use of the new infrastructure.

The grant agreements contain provisions for an Interim Use Project Reserve (Task 9). This allocation does not alter or affect the overall federal share associated with funding this project. The management and use of the reserve funding is described in the draft project reserve planning documents previously submitted to the FRA. Use of reserve funds is dependent upon FRA approval. The reserve was established to cover costs that would be incurred as part of early use that would not be part of a high-speed rail federally funded FCS. These elements could include track connections and associated communications and signaling, interim stations, operations control, and maintenance.

The Interim Use Project Reserve was originally 100% federally funded with no state match attached to this allocation. However, the reserve fund allocation underwent a restructuring in the ARRA Amendment 6 process and also included permission for the Authority to use $53.86 million of reserve funds to purchase radio spectrum – a communications system for the entire system. The amendment process also included a contribution of $46.3 million in state funds to the Interim Use Project Reserve allocation. Currently, the Interim Use Project Reserve balance is $154 million ($108M and $46M in FY 10 and state funds, respectively).

The Interim Use Project Reserve task is broken into two subtasks: Task 9.1 Project Reserves and Task 9.2 Interim Use Reserve. Task 9.1 is reserved for budgeted, but unallocated, costs over and above unallocated contingency. Task 9.2 is for infrastructure elements that may be necessary to initiate independent utility on the CVP (generally between Madera and northern Kern County).

Interim Use Operations

FRA anticipates that Interim Use Project Reserve funds could be needed and used to establish early intercity rail operations on the CVP if it appears high-speed rail revenue service, on a longer operational segment that includes the CVP, will be significantly delayed. Expenditure of funds in this allocation are subject to FRA approval and may only be used for the construction infrastructure necessary to initiate early operations on the CVP funded under the grant. The amount established in the Interim Use Reserve Fund is an estimate of the maximum funds required to implement early service operations including track, signal and communications elements, stations, operations control, and a limited maintenance facility. If such reallocation occurs, the Authority will be obligated to provide the matching contribution for the reallocated Interim Reserve Fund.

Prior to the release of Requests for Proposals or bids for track, signals, or other system elements (i.e., beyond civil and structural infrastructure), if FRA determines that there will be a significant delay in completing the investments needed to begin initial high speed rail revenue service on an initial operating segment that includes the CVP, FRA may direct the Authority to use the Interim Use Reserve Funds to build any required capital investments necessary for an interim service alternative that will ensure operations over the CVP for the minimum term of 20 years. Upon such an FRA determination and prior to letting any contracts necessary to implement the FRA-approved interim service alternative, the Authority shall ensure operating and financial commitments are secured by the appropriate governmental agencies and/or private entities that would construct and operate such early service alternatives.

Appendix 1 – Proposition 1A

"Safe, Reliable High-Speed Passenger Train Bond Act for the 21st Century"

(AB 3034 – Chapter 267 – Statutes of 2008)

Appendix 2 – California State Budget Process

State Budget Process Overview

The Governor's budget is the result of a process that begins more than one year before the budget becomes law. Capital Outlay Budget Change Proposals (COBCPs) are documents that propose to modify or change funding levels, existing level of service, propose new programs or delete existing programs. These documents are prepared by agencies/departments and submitted to the DOF. This process starts in July with Budget Concept Statements, which are internal documents utilized to gather data, document research and present requests in a manner consistent with the COBCP format. The concepts are then evaluated by departmental management and either approved or denied for submission to DOF for consideration. The process concludes in September when all requests are submitted to DOF for review and determination of requests. Approved requests are incorporated into the Governor's budget.

The California Constitution requires the Governor to submit a budget to the Legislature by January 10 which includes an explanatory message and provides a budget for the ensuing year with itemized expenditures and revenues. By constitutional requirement, the Governor's budget must be accompanied by a Budget Bill itemizing recommended expenditures which shall be introduced in each house of the Legislature. The Constitution also requires that the Legislature pass the bill by June 15. The Senate Budget and Fiscal Review Committee and the Assembly Budget Committee are the two committees that hear the Budget Bills. These hearings generally begin in late February soon after the Legislative Analyst issues the Analysis of the Budget Bill.

The DOF proposes adjustments to the Governor's budget through Finance Letters in the spring. By statute, the DOF is required to give the Legislature all proposed adjustments, other than Capital Outlay and May Revision, to the Governor's budget by April 1. Capital Outlay adjustments are due by May 1. The traditional May Revision adjustments are due by May 14, and consist of an update of general fund revenues and changes in expenditures for school funding requirements pursuant to Proposition 98, caseload, enrollment, or population. The Legislature typically waits for the May Revision update before final budget decisions are made on major programs such as education, corrections, and health and human services.

When the Budget Bill receives a two-thirds vote of each house, it is passed on to the Governor. The Constitution allows the Governor to reduce or eliminate an item of appropriation.

There are generally budget changes proposed by the Governor or the Legislature which necessitate changes to existing law in order to implement the budget changes. If this is the case, separate bills are introduced to implement the change. These budget implementation bills are called trailer bills and are heard concurrently with the Budget Bill. By law, all proposed statutory changes necessary to implement the Governor's budget are due to the Legislature by February 1.

The Budget Act is the primary source for appropriations. Continuous statutory appropriations and special legislation also provide expenditure authority.

Departments have the primary responsibility to operate within budgeted levels and to comply with any restrictions or limitations enacted by the Legislature. Further, the general expectation is that State agencies comply with the legislative intent.

Process for Budget Augmentation

Although the general expectation is to conform to the enacted budget, the Legislature has recognized a need to establish some flexibility to adjust budgets. For example, the statutes provide a continuous appropriation for allocations by the Director of Finance to meet expenditures resulting from natural disasters for any emergency proclaimed by the Governor. The Legislature has also provided provisions in the Budget Act to allow for budget adjustments. Most of this authority requires Director of Finance approval; many require a formal notice to the Legislature and a waiting period to provide the opportunity for legislative review and response before final approval. Budget Act provisions to allow adjustments include authorizations for:

- Changes to federal funding levels
- Deficiencies
- Changes to reimbursements
- Intra-item transfers

The DOF approves budget changes using Budget Revisions, Executive Orders and Letters. These changes are transmitted to the SCO, which maintains the statewide appropriation control accounts.

The Governor has certain powers to adjust expenditures. Although these powers do not permit for adjustment of appropriations, the expenditure plan may be changed. For example, past Governors have issued Executive Orders to implement hiring and equipment purchase freezes and delayed capital expenditures. Under emergency conditions, the Governor is also authorized to direct State resources to meet emergency needs.

Listed below are mechanisms, including descriptions and additional provisions, departments can utilize to augment their appropriations.

Section 26.00 – Intra-Schedule Transfers

Section 26.00 authorizes the transfer of funds from one line to another within the schedule of an appropriation. The amount of the transfer is limited in provisions (c) 1-4. However, provision (e) provides that transfers exceeding these limits may be authorized, but not sooner than 30 days after notification in writing of the necessity to exceed the limitations is provided to the Legislature. The following also applies to Section 26.00 adjustments:

- Intra-schedule transfers for capital outlay purposes are prohibited, regardless of whether budgeted in a capital outlay or local assistance appropriation.
- Intra-schedule transfers are allowed for support and local assistance type purposes.
- Transfers may not establish or eliminate a program, project, or function.
- Any transfer in excess of $200,000 requires advance reporting to the Legislature.

DOF is required to report all budget adjustments authorized pursuant to Section 26.00 annually at the end of the fiscal year to the Legislature.

Section 28.00 – Augmentation for Receipt of Non-State Funds

Section 28.00 authorizes DOF to approve augmentations for the expenditure of unanticipated funds received from the federal or local governments or any other non-state entity. For purposes of this

Section, unanticipated means those instances when receipt of the funds could not reasonably have been foreseen at the time of the development of the Governor's budget or the submission of Spring Finance Letters for inclusion in the budget for the ensuing fiscal year. DOF may also reduce any program, project, or function if funds will not be received as anticipated.

Section 28.00 does not provide an appropriation. Augmentations approved pursuant to Section 28.00 involve adjustments of moneys which already have been appropriated.

To receive consideration for an augmentation, departments must either notify DOF within 45 days of receiving official notification of additional funds or provide written explanation to DOF why the 45-day notification requirement could not be met. In either case, the department must provide DOF a copy of the official notice of fund availability.

Regardless of the source of the additional funding, any augmentation that exceeds either $400,000 or 10 percent of the amount available for expenditure in the affected program, project, or function must be reported to the Legislature. The notification to the Legislature must include the date the department received official notification of additional funds and a copy of the department's written explanation of delayed notification to DOF if the 45 day requirement could not be met.

Section 28.00 augmentations must also meet the following four criteria, and this information must be included in the notification to the Legislature:

- The funds will be expended for a purpose that is consistent with state law.
- The funds are made available to the state under conditions permitting their use only for a specified purpose, and the additional expenditure proposed under this section would apply to that specified funding purpose.
- Acceptance of the funds does not impose any requirement to commit or expend new state funds.
- The need exists to expend the additional funding during the current fiscal year.

Section 28.50 – Augmentation for the Receipt of State Funds

Section 28.50 authorizes DOF to approve a state agency's expenditure of additional reimbursements received from another state agency. DOF may also reduce any reimbursement amount and the related expenditure authority if anticipated reimbursements will not be received.

DOF approval of the expenditure of such reimbursements that exceeds $200,000 must be reported to the Legislature.

If the funding for the agency providing the reimbursements has been approved by the Legislature or reported to the Legislature in accordance with other Section requirements, the DOF approval of the receipt and expenditure of the reimbursements will be considered a technical budget adjustment. Reporting will not be required pursuant to Section 1.50.

However, any new activity, program, or issues considered "sensitive" (as specified in the General Reporting guidelines) that will be funded by additional reimbursements should be reported. The use of Section 1.50 to make technical adjustments will not be used in these instances.

Appendix 3 – Extract of SB 862 Cap and Trade Program Language

SB 862 added Health and Safety Code Section 39719 and 39719.1 to state law that increase funding of the High-Speed Rail Program. Key provisions appear below.

Section 39719 is Added to the Health and Safety Code, to Read:

- 39719. (a) The Legislature shall appropriate the annual proceeds of the fund for the purpose of reducing greenhouse gas emissions in this state in accordance with the requirements of Section 39712.
- (b) To carry out a portion of the requirements of subdivision (a), annual proceeds are continuously appropriated for the following:
  - Beginning in the 2015–16 fiscal year, and notwithstanding Section 13340 of the Government Code, 35 percent of annual proceeds are continuously appropriated, without regard to fiscal years, for transit, affordable housing, and sustainable communities programs as following:
    (A) Ten percent of the annual proceeds of the fund is hereby continuously appropriated to the Transportation Agency for the Transit and Intercity Rail Capital Program created by Part 2 (commencing with Section 75220) of Division 44 of the Public Resources Code.
    (B) Five percent of the annual proceeds of the fund is hereby continuously appropriated to the Low Carbon Transit Operations Program created by Part 3 (commencing with Section 75230) of Division 44 of the Public Resources Code. Funds shall be allocated by the Controller, according to requirements of the program, and pursuant to the distribution formula in subdivision (b) or (c) of Section 99312 of, and Sections 99313 and 99314 of, the Public Utilities Code.
    (C) Twenty percent of the annual proceeds of the fund is hereby continuously appropriated to the Strategic Growth Council for the Affordable Housing and Sustainable Communities Program created by Part 1 (commencing with Section 75200) of Division 44 of the Public Resources Code. Of the amount appropriated in this subparagraph, no less than 10 percent of the annual proceeds, shall be expended for affordable housing, consistent with the provisions of that program.
  - Beginning in the 2015–16 fiscal year, notwithstanding Section 13340 of the Government Code, 25 percent of the annual proceeds of the fund is hereby continuously appropriated to the High-Speed Rail Authority for the following components of the initial operating segment and Phase I Blended System as described in the 2012 business plan adopted pursuant to Section 185033 of the Public Utilities Code:
    (A) Acquisition and construction costs of the project.
    (B) Environmental review and design costs of the project.
    (C) Other capital costs of the project.
    (D) Repayment of any loans made to the authority to fund the project.
- (c) In determining the amount of annual proceeds of the fund for purposes of the calculation in subdivision (b), the funds subject to Section 39719.1 shall not be included.

SEC. 8. Section 39719.1 is Added to the Health and Safety Code, to Read:

- 39719.1. (a) Of the amount loaned from the fund to the General Fund pursuant to Item 3900-011-3228 of Section 2.00 of the Budget Act of 2013, four hundred million dollars ($400,000,000) shall be available to the High-Speed Rail Authority pursuant to subdivision (b).
- (b) The portion of the loan from the fund to the General Fund described in subdivision (a) shall be repaid to the fund as necessary based on the financial needs of the high-speed rail project. Beginning in the 2015–16 fiscal year, and in order to carry out the goals of the fund in accordance with the requirements of Section 39712, the amounts of all the loan repayments, notwithstanding Section 13340 of the Government Code, are continuously appropriated from the fund to the High-Speed Rail Authority for the following components of the initial operating segment and Phase I Blended System as described in the 2012 business plan adopted pursuant to Section 185033 of the Public Utilities Code:
  - Acquisition and construction costs of the project.
  - Environmental review and design costs of the project.
  - Other capital costs of the project
  - Repayment of any loans made to the authority to fund the project.

Appendix 4 – Summary of Funding Sources, Appropriations, Risks, and Risk Mitigations

American Recovery and Reinvestment Act (ARRA)

Appropriations

ARRA funding has been provided through Federal Grant FR-HSR-0009-10-01-00 and is being used for pre-construction and construction costs on the Central Valley Project. Funds were appropriated through SB1029, passed by the California State Legislature and signed by the Governor, authorizing expenditure of federal grant funding.

Risks	Risk Mitigations
The ARRA funding appropriation sunsets in September 2017 – funds not fully expended are subject to being lost.	The FRA and Authority have agreed to a tapered match funding regime whereby ARRA payments may temporarily exceed Grantee's contributory matching funding percentage. This creates the opportunity for substantial cost saving as well as accelerating the use of ARRA funds subject to the 2017 sunset. Additionally the Authority provides a quarterly Funding Contribution Plan to FRA which details CVP expenditures through project completion.
Project delays may result in slower-than-anticipated expenditure of ARRA grant funding	The Authority has implemented a robust risk management framework that is designed to identify and manage risk through the construction process, particularly risks that could lead to Project delays. The Authority is supported by experienced consultant teams. The Authority's Rail Development Partner (RDP) will support the Authority organizationally including commercial structuring, procurement, contract negotiation, oversight and management, and design and engineering. Most importantly, the RDP has contracted under a performance regime designed to enhance on-time and on-budget delivery of the Program. The Authority continues to make significant progress on its current Contract Packages. See the Introduction section of this report for a full description of Project Status. In the most recent Grant Amendment 6 the Period of Performance has been extended from December 31, 2017 to December 31, 2022. This means that the Authority has an extra 5 years in which to provide matching funds.
Change orders or other unforeseen events may result in higher than anticipated total capital costs	The Authority has initiated a change committee that FRA participates in whose purpose is to provide oversight to mitigate cost overruns.

Risks	Risk Mitigations
Prop 1A matching contributions become unavailable	If Prop 1A funding becomes unavailable as contributory matching funds for the ARRA funding the Authority is able to utilize appropriated Cap and Trade funds in its place - see Cap and Trade Funding section.

FY 10 Funding

Appropriations

Funding has been provided through Federal Grant FR-HSR-01118-12-01-00 and is being used for construction activities on the Central Valley Project. Funds also were appropriated under SB 1029, state budget legislation passed by the California State Legislature and signed by the Governor, authorizing expenditure of federal grant funding in the amount of $928.6 million for construction of the CVP.

Risks	Risk Mitigations
Other revenues expire or become unavailable, rendering the remaining FY 10 funding insufficient	As described in the other funding sections, herein, the Authority has agreed with FRA to accelerate the use of ARRA funds under the tapered match plan to enable sun-setting funds to be expended first. The state has secured a back-up source of state funding in the form of Cap and Trade Revenues should Prop 1A become unavailable for any reason.

Proposition 1A

Appropriations

Proposition 1A (or Prop 1A) was passed by voters in 2008, creating a $9 billion dedicated source of funding for California High-Speed Rail. The California Legislature appropriated Prop 1A bond proceeds in the amounts of $2.6 billion for construction and $377 million for Project Development costs.

Risks	Risk Mitigations
Legal action further delays availability of funds	Authority continues to successfully challenge legal action. Cap and Trade funding may be used as a substitution for Prop 1A funds.
Cap and Trade funds are allocated to other parts of the system, providing no back-stop to Prop 1A funds	Cap and Trade funds are currently being used for CVP construction expenditures. The Authority will assess its funding requirements on a periodic basis and assign funds to projects as it deems necessary.
Required federal matching funds expire	As described in the ARRA funding section, the Authority has agreed with FRA to accelerate the use of ARRA funds under the tapered match plan to enable sun-setting funds to be expended first. Additionally, the Federal government has

Risks	Risk Mitigations
	extended the period of performance which gives the Authority an additional 5 years to provide matching funds.

Cap and Trade

Appropriations

The Cap and Trade program was established through AB 32. Appropriation of Cap and Trade Revenues was approved in the FY 2014-15 budget cycle, through AB 862, of which 25 percent is continuously appropriated to the Authority.

Risks	Risk Mitigations
Cap and Trade Auction proceeds may be lower than what the Authority commits to project expenditures	Authority continues to monitor Cap and Trade auction results and actively manages its commitments of Cap and Trade funds based on conservative estimates. Under the provisions of SB 862 California High-Speed Rail will receive 25 percent of Cap and Trade revenues on an on-going basis. • $600 million in the Governor's budget for FY15/16 based on the continuous appropriation • $500 million in the Governor's budget for FY16/17 based on the continuous appropriation plus $100 million of a $400 million one-time appropriation, for a total of $600 million in FY16/17 See LAO Report for recent Cap and Trade results: *Cap-and-Trade Revenue: Likely Much higher Than Governor's Budget Assumes:* lao.ca.gov/LAOEconTax/Article/Detail/64
Authority commits C&T funds to other parts of the system making them unavailable to back-stop Prop 1A	Cap and Trade funds are currently being used for CVP construction expenditures. The Authority will assess its funding requirements on a periodic basis and assign funds to projects as it deems necessary.

Local Funding

Appropriations

Local match of $52.1 million has been provided for specific system-wide pre-construction costs.

Risks	Risk Mitigations
Funding is not provided by local entities	No local funding will be used for construction of the CVP. For use in pre-construction expenditures the Authority is actively engaged in negotiating funding agreements with Southern California agencies and FRA.

Appendix 5 – Top Risks

California High-Speed Rail Authority	Date	Rating	
Risk Mitigation Actions	July 10, 2016	**Current**	**Prior**
		5	5

Risk ID	Description
1004	Delays to acquisition of ROW parcels for CP 1 contract as committed in the DB contract ROW Acquisition Plans may impact the construction schedule.
Discipline	
ROW	

Risk Background Information: The Authority owns the risk of delivering ROW to DB Contractor on time. If the ROW acquisition has not progressed as committed in the ROW Acquisition Plan for Design Build Contracts, Authority may incur delay claims. Authority has partnered with the contractor to identify early start locations and focus delivery of those parcels. Progress is being made to achieve this commitment and should help mitigate the potential delay claims.

Risk Mitigation Actions

#	Action Description	Deliverable	Due Date
1	Authority to take action to resolve bottlenecks and staffing issues. Update: Continuous monitoring ongoing to resolve bottlenecks.	Hiring of staff	Ongoing
2	Authority has augmented staffing, reallocated administrative duties to free up technical resources and worked with partners to establish priorities.		Complete
3	Partner with the contractor to potentially re-sequence or accelerate work as necessary. Update: Identified locations within CP 2-3 contract where construction Is being accelerated to reduce delays.		In Progress
4	Working with Department of Finance (DOF) and DGS to implement administrative delegations to streamline the process.		In Progress
5			

Other Potential Mitigation Actions

The ROW division is currently clearing additional widths along corridors to reduce secondary ROW acquisitions from same owners resulting from design changes / refinements.

History Log

California High-Speed Rail Authority	Date	Rating	
Risk Mitigation Actions	July 10, 2016	Current	Prior
		5	5

Risk ID	Description
1003	Delays in obtaining all agreements with railroads for Central Valley due to extended negotiations periods.
Discipline	
Political Government External	

Risk Background Information: Many interface agreements and integration risks associated with UPRR and BNSF and other railroad agencies including risks with design, construction methodologies, operational issues related to the joint use of ROW, stations and ancillary facilities, integration with rail infrastructure and operating companies. Authority is responsible for providing the Contractors with executed versions of any Railroad Agreements that were not executed and provided to the Contractor prior to the Proposal Deadline.

Risk Mitigation Actions

#	Action Description	Deliverable	Due Date
1	With BNSF, identify critical ROW areas and Establish the agreements 1) Purchase & Sale 2) Grade Separation, 3) Relocation & Construction including I&I provisions.	Agreements	11.29.2016 templates for 1, 2 and 3 developed
2	With UPRR, identify critical ROW areas and establish the agreements 1) Engineering, Construction & Maintenance, 2) Insurance & Indemnification, 3) Purchase & Sale, 4) Grade Separation.	Agreements	Completed 1, 2, 3 in signed, template developed for 4.
3	Sign remaining agreements with railroad when DB contractors complete 100% design of railroad crossings at various locations.	Agreements / 100% Design	Ongoing
4			
5			

Other Potential Mitigation Actions

History Log

Templates for all agreements have been developed. BNSF has requested to sign the agreements at the 100% design level of BNSF realignments and intrusion protection requirements.

California High-Speed Rail Authority	Date	Rating	
Risk Mitigation Actions	July 10, 2016	Current	Prior
		5	5

Risk ID	Description
1022	Increase in capital costs because of potential for underestimated Environmental Mitigation costs in the absence of a program-wide policy on managing mitigation.
Discipline	
Environmental	

Risk Background Information: Lack of a program-wide policy for managing and funding mitigation measures including wetlands, soil remediation, cultural resources and other mitigation measures currently negotiated either with resource agencies or local communities. Three percent of the construction cost is now used as an assumption by the cost estimators for estimating mitigation costs, thiis likely to be too low.

Risk Mitigation Actions

#	Action Description	Deliverable	Due Date
1	Assess impact avoidance and minimization measures (IAMM), mitigation measures used in MF and FB EIR/EIS and experience with CP 1 to revise and clarify IAMMs and mitigation measures.		9.30.2016 Ongoing; coordinating with construction contract managers
2	Revise estimate at the program level and include in program estimates and funding scenarios, a line item for environmental mitigation and track usage.		Ongoing
3	Update WBS dictionary and ensure WBS dictionary environmental scope excludes planning betterments.	WBS Dictionary	In Progress
4	Develop a policy for natural resource compensatory mitigation.		In Progress
5			

Other Potential Mitigation Actions

History Log

At the project/contract level, a line item is included in DB price proposal for environmental mitigation.

California High-Speed Rail Authority	Date	Rating	
Risk Mitigation Actions	July 10, 2016	Current	Prior
		2	5

Risk ID	Description
1029	Failure of station-area development and value capture to continue with the ancillary funding (approx. 30%).
Discipline	
Financial	

Risk Background Information: Failure to receive local funding could impact the development of stations and related local networks causing a decrease in ridership. The statewide end of redevelopment authority has limited localities' ability to implement of value capture around stations. Station Cities that have not received station area planning funds will not have the benefit of added analysis of land use, development potential and connectivity - all elements that work toward improving ridership and revenue over base conditions.

Risk Mitigation Actions

#	Action Description	Deliverable	Due Date
1	Use Station Area Planning to promote local funding and joint development to enhance ridership/revenue.		7.1.2017 In Progress
2	Develop strategies for creating and capturing value from commercial and real estate development in areas around HSR stations and for the acquisition, management, and value capture for properties included in station footprint		7.1.2017 In Progress
3	Research legal remedies to enable more effective value capture by localities and/or HSR Program.		12.31.2016 In Progress
4			
5			

Other Potential Mitigation Actions

History Log

California High-Speed Rail Authority	Date	Rating	
Risk Mitigation Actions	March 10, 2016	Current	Prior
		5	5

Risk ID	Description
1032	Failure to obtain financing for the project, either public or private financing or both.
Discipline	
Financial	

Risk Background Information: The ability to finance the project is largely dependent upon the revenue source used for repayment. For project financing, this is normally net project revenue (revenue less operating costs) but can also include appropriated funding. Authority continues to evaluate the use of innovative delivery models that leverage private finance to deliver the project, has conducted informal market testing/sounding, has evaluated the use of a range of financing structures as an additional form of financing, and is considering ancillary sources of revenue to support project revenue. The Authority continues to work with stakeholders to gain support for the project.

Risk Mitigation Actions

#	Action Description	Deliverable	Due Date
1	The near-term funding risk is mitigated by the identification of all necessary sources for the CVP construction cost. The scope of first construction section will be managed to ensure that CVP/FCS of the Valley to Valley section is completed within the current funding appropriation.		2.6.2014 Complete
2	Continue to reach out to the private sector to test appetite and refine procurement / commercial approach.	RFEI process	Complete - RFEI process concluded, inputs incorporated in 2016 Business plan
3	Continue to evaluate alternative delivery models and commercial mechanisms that leverage private investment.		Ongoing
4	Continue to work with federal partners, members of Congress and state legislators, the USDOT and other stakeholders to maintain support for funding and financing programs.		Ongoing
5			

Other Potential Mitigation Actions

History Log

The near-term funding risk is mitigated by the identification of all necessary sources for the $6 billion cost. The ultimate scope of first construction section will be managed to ensure that FCS of the IOS is completed within the current $6 billion appropriation.

California High-Speed Rail Authority	Date	Rating	
Risk Mitigation Actions	July 10, 2016	Current	Prior
		5	5

Risk ID	Description
1189	Increased capital costs due to railroads request for intrusion protection and/or detection measures to provide clearance from their ROW property line.
Discipline	
Engineering / Technical	

Risk Background Information: BNSF have requested intrusion protection measures of 102-ft from their property line rather than a 102-ft from their track center-line, as specified in CP 2-3 contract documents, in order to preserve ability to construct additional tracks within the full extent of their existing ROW. At the current 102-ft spacing requirement between HSR and BNSF, any additional BNSF track in that zone would require the consideration of intrusion protection measures. Depending on how the barrier design is finalized, there could be significant cost risk in construction of barriers. Authority is looking at the mixture between ditch/berm/barriers to ensure safety at appropriate cost levels.

Risk Mitigation Actions

#	Action Description	Deliverable	Due Date
1	Develop white paper for BNSF on strategies for use of earthen berms as intrusion protection.	White Paper	2.28.2016 Complete
2	Negotiate agreements with BNSF to address requirement of 250-ft clearance from ROW and associated intrusion protection/detection measures	Relocation and Construction agreement with BNSF	7.30.2016 In Progress
3	Intrusion Protection barrier - draft Intrusion Barrier Assessment report recommending design forces to FRA, Volpe, UPRR and BNSF, received comments and issue final report.	Design standards for barrier wall	7.30.2016 In Progress; Received comments from BNSF and FRA on draft intrusion barrier assessment report; Working on issuing final report.
4	Refine alternatives for intrusion barriers and incorporate recommendations on the design standards for barrier wall as part of the railroad agreements.		7.29.2016 In Progress
5			

Other Potential Mitigation Actions

Authority is working cooperatively with railroads to identify engineering solutions for mitigating the adjacency issues within CP1 and CP2-3.

History Log

Draft intrusion detection requirements have been negotiated, the requirements for CP 1, CP 2-3 and CP 4 contracts will be incorporated in CP 5 contract. Working with FRA on finalizing the recommended design standards for intrusion protection requirements.

California High-Speed Rail Authority	Date	Rating	
Risk Mitigation Actions	July 10, 2016	Current	Prior
		3	5

Risk ID	Description
1194	Delays in testing, commissioning and start of HSR operations due to unavailability of traction power substations to supply power for HSR operations.
Discipline	
Political Government External	

Risk Background Information: New utility construction or transmission network upgrade required for PG&E and SCE traction power substations. Risk is that there is a long-term planning, permitting and engineering process for each substation connections to the high-voltage grades (up to 6 years) which could impact testing, commissioning and start of operations.

Risk Mitigation Actions

#	Action Description	Deliverable	Due Date
1	Continue discussions with utility agencies (PG&E, SCE, and CPUC) to start planning for additional network upgrades.		Ongoing
2	Negotiate scope with utility agencies for next contract to perform impact analysis study, design, engineering, environmental and construction permits.	Reimbursable agreements	Ongoing
3	Complete environmental clearances. Authority to resolve disagreement between FRA and AG office on whether to clear sites 8-12.		10.30.17 Ongoing
4			
5			

Other Potential Mitigation Actions

History Log

Reassessed electric loads required for testing and commissioning and for initial operations (i.e. 2 trains per hour per direction). This load is 10% of theoretical max load (12 trains /hour/direction) with 9 trains as doable limits) initially provided to PG&E and SCE. PG&E is reassessing but first review is that minimal PG&E reinforcement required to support 2 trains /hour/direction.

California High-Speed Rail Authority	Date	Rating	
Risk Mitigation Actions	March 10, 2016	Current	Prior
		3	5

Risk ID	Description
1211	Authority's inability to manage funding streams due to lack of an in-house financial system within Authority that meets either existing or anticipated needs.
Discipline	
Program Management and Controls	

Risk Background Information: The lack of in-house financial system has and likely will continue to result in delays to: 1) negative impacts to funding opportunities (principally delays), 2) delays to the planning, designing, and building of the high-speed rail system, and 3) the addition of an unnecessary level of complexity when managing and overseeing the Regional Consultant contracts, the Federal ARRA grant, and Federal drawdowns for payments.

Risk Mitigation Actions

#	Action Description	Deliverable	Due Date
1	Confirm business specific financial management system needs to be addressed outside of FI$Cal. Define financial management system scope, integration points and overall system functionality.	Study	Ongoing
2	Acquire and implement in-house financial system sufficient to manage multiple streams of federal funding, state bond funding, and anticipated private sector/investor funding as well as provide accurate and timely reports, forecasts, and estimates.	Financial System	Ongoing
3			
4			
5			

Other Potential Mitigation Actions

History Log

8.24.2015 - FI$CAL implementation ongoing to eliminate overlapping of system functions. Risk rating reduced from Very High to High.

California High-Speed Rail Authority	Date	Rating	
Risk Mitigation Actions	July 10, 2016	Current	Prior
		4	5

Risk ID	Description
1230	Expiration of ARRA allocated funds for station area planning efforts due to IOS station cities not progressing Station-area planning thereby impacting station final design schedule and budget.
Discipline	
Financial	

Risk Background Information: Since the Authority created the Station Partnership Program in 2011, not all invited cities have completed funding agreements. Some of the invited localities have either not applied or suspended their applications. This will impact Station-Area Planning (SAP) including station community interface, station access/egress, joint development, and local value capture. ARRA grant funds may not be spend by 2017 and potentially expire unused. Without SAP multiple issues can arise during final station design that impact schedule and budget of both design and construction of the stations.

Risk Mitigation Actions

#	Action Description	Deliverable	Due Date
1	Expand SAP to additional cities and finalize FRA approval of reallocating reserved funds to Burbank and Millbrae.		7.1.2015 Complete
2	Develop process and decision calendar for determining if each invited city continue in SAP program or alternate method is needed for planning.		7.1.2015 Complete
3	Develop HSR program-led station development program to cover SAP scope if host locality is not responsive to SAP program invitation. Create city specific work plans for finalizing funding agreements or implementing HSR-led station development program.		12.31.2016 In Progress
4	Execute all station funding agreements.	Funding agreements with all stations	8.30.2016 In Progress; Agreements in place for all cities except one station city
5			

Other Potential Mitigation Actions

Analyzing likely expenditure by March 2017 for each executed station area planning contract. We will then determine, in conjunction with FRA, if we can move money from station area planning to construction so that SAP can be primarily state and local funded.

History Log

6.16.2015 – Risk rating reduced from Very High to High as station-area planning work is now progressing on all Valley to Valley stations.

California High-Speed Rail Authority	Date	Rating	
Risk Mitigation Actions	July 10, 2016	Current	Prior
		2	5

Risk ID	Description
1359	Increased cost of PG&E and AT&T work on the Construction Package 1 following reassignment of work from utility agencies to CP1 Design Build Contractor (TPZP) and increase in scope of work due to unidentified utilities.
Discipline	
Construction / Site	

Risk Background Information: The updated CP1 risk analysis performed indicates a negative trend with respect to three risks that we initially identified again, those being: right-of-way, utility relocations, and adjacent railroad requirements. The risk analysis indicates that we have the potential of exceeding the contingency envelope for CP1 if risk mitigation actions are not undertaken.

Risk Mitigation Actions

#	Action Description	Deliverable	Due Date
1	Considering alternate design concepts as well as value engineering solutions.		Ongoing
2	Estimate the extent and scope of utilities, especially underground utilities, and estimate the costs of relocation.	Revised estimate	Complete
3	Perform risk-informed quantitative contingency analysis to develop required contingency over revised estimate of PG&E and AT&T utility relocations.	Third party scope risk contingency analysis	Complete - Analysis performed and presented to F&A committee in May 2016
4	Recommend Authority Board to allocate additional contingencies to the CP1 capital cost estimate to account for the increase in third party work.		In Progress
5			

Other Potential Mitigation Actions

History Log

In February 2016, recommended to the Authority Board the need to increase contingencies on CP1 by about $150M

K0052

From:	Barnes, Juliana (FRA)
To:	Malone, Desiree@HSR
Cc:	Gilliland, Barbara(PB)@HSR; OK-Marian L. Rule; Everett, Lynn (FRA); OK-Robert L. Zimmerer
Subject:	Initial Feedback: Q4-16 Deliverables
Date:	Wednesday, January 18, 2017 1:22:20 PM
Attachments:	CONOPS FRA Review (01-17-17).docx 2016-2017 AWP FRA Review (01-17-17).docx 2016 CVPFP FRA Review (01-17-17).docx

---

Hi Desi,

FRA acknowledges receipt of the following deliverables transmitted on Dec 29, 2016:

- FCS Utilization Plan/CONOPs
- Annual Work Plan (AWP)
- Central Valley Financial Plan (CVFP)
- Phase 1 Program Financial Plan
- Program Management Plan
- CP 4 Baseline Schedule
- Q4_16 Exhibit A Update

An initial review was conducted of the following submittals in the three attached documents: (1) FCS Utilization Plan/CONOPS, (2) Annual Work Plan, and (3) CV Financial Plan which contain initial comments. Please note FRA is returning those deliverables after initial review and requests resubmission after addressing the attached FRA initial comments for further development by Feb 2, 2017.

The remainder of the 4th Qtr deliverables are under review and FRA will provide comments prior to the end of the month.

Regards,

Juliana Barnes, PMP
Project Manager
Office of Program Delivery (RPD-15)
Federal Railroad Administration
801 I St., Suite 466
Sacramento, CA 95814
Cell: 916-215-9115

CHSRA delivered Central Valley Project Financial Plan (CVPFP), dated June 2016, to FRA on 12/30/16. FRA's review comments follow.

- **Central Valley Project Financial Plan:**
  - Required Components (ARRA Grant Amendment 6):
    - CHSRA will provide for FRA review and approval a Financial Plan for the FCS (FCS Financial Plan) that demonstrates CHSRA has secured firm commitments of all funding (other than that provided through the grant agreements) required to complete construction of the FCS. The financial plan will provide (in year-of-expenditure dollars) finalized annual projections for the sources and uses of all funds, during the development and construction phases of the FCS and a detailed assessment of financial risks facing the FCS during both the construction (including risks such as capital cost overruns, revenue shortfalls, and maintenance cost overruns), along with proposed actions for mitigating or accommodating such risks (including assessment of additional funding sources available to compensate for potential capital financing shortfalls). The FCS Financial Plan will discuss and incorporate the Interim Use Reserve.
  - Key FRA Review Comments from Prior Review:
    - Develop a version that looks ahead, meets the requirements of ARRA Grant Amendment 6, and reflects the conclusions [from ARRA Grant Amendment 6] about schedule, cost/budget, and strategy for interim use.
    - The plan needs to cover the financial specifics of the FCS as a standalone part of the Silicon Valley to Central Valley IOS.
  - Comments:
    - FRA does not accept the current version of the Central Valley Project Financial Plan, as the document does not address FRA's past review comments. CHSRA needs to develop the document by:
      - Taking into consideration the required components listed above per ARRA Grant Amendment 6, including a focus on the financial specifics of the FCS as a standalone part of the IOS.
      - In lieu of discussing and listing the requirements CHSRA has to meet, highlight how CHSRA prepares an FCP, a budget, etc. and what CHSRA takes into account when preparing an FCP, budget, etc. In other words, discuss how CHSRA meets all the necessary requirements.

K0054

K0055

From:	Malone, Desiree@HSR
To:	Barnes, Juliana (FRA)
Cc:	Gilliland, Barbara(PB)@HSR; OK-Marian L. Rule; Everett, Lynn (FRA); OK-Robert L. Zimmerer; Giovinazzi, Giles@DOT; Fong, Russell@HSR
Subject:	RE: Initial Feedback: Q4-16 Deliverables
Date:	Thursday, February 23, 2017 11:56:36 AM
Attachments:	2016 CVPFP FRA Review (01-17-17).docx CVPFP Final Revised.pdf

Hi Juliana,

Attached is a revised Central Valley Project Funding Plan. After review, please inform if the revision satisfactorily meets the initial feedback provided (in the FRA Review attachment).

Regards, Desi

From: Barnes, Juliana (FRA) [mailto:juliana.barnes@dot.gov]
Sent: Wednesday, January 18, 2017 1:22 PM
To: Malone, Desiree@HSR
Cc: Gilliland, Barbara(PB)@HSR; mlrule@transystems.com; Everett, Lynn (FRA); rlzimmerer@transystems.com
Subject: Initial Feedback: Q4-16 Deliverables

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The remainder of the 4th Qtr deliverables are under review and FRA will provide comments prior to the end of the month.

Regards,

Juliana Barnes, PMP
Project Manager

Office of Program Delivery (RPD-15)
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K0057

CALIFORNIA
High-Speed Rail Authority

Central Valley Project Financial Plan (CVPFP)

June 2016

www.hsr.ca.gov

K0058

Table of Contents

DOCUMENTS INCORPORATED BY REFERENCE

2012 Business Plan	http://hsr.ca.gov/About/Business_Plans/2012_Business_Plan.html
2014 Business Plan	http://hsr.ca.gov/About/Business_Plans/2014_Business_Plan.html
2016 Business Plan	http://hsr.ca.gov/About/Business_Plans/2016_Business_Plan.html
Funding Contribution Plan	3rd Quarter 2016 submitted to FRA
Risk Management Plan	6/4/13 version provided to FRA

Introduction

The California High-Speed Rail Authority (Authority) has prepared this Central Valley Project Financial Plan (CVPFP) in accordance with Federal Railroad Authority (FRA) terms of Cooperative Agreement FR HSR-0009-10-01-06 (American Recovery and Reinvestment Act [ARRA]) and Cooperative Agreement FR-HSR-0118-12-01-00 (High-Speed Intercity Passenger Rail Program (HSIRP) for federal fiscal year 2010 [FY10]). The CVPFP is the Authority's annual financial plan and details the funding available to construct the initial section of California's high-speed rail project in the Central Valley.

The Central Valley Project Overview

This CVPFP is being submitted pursuant to the above-referenced ARRA and FY10 grant agreements as the financial plan for January 1, 2016 through June 30, 2016. The Central Valley Project (CVP) was previously known as the First Construction Segment (FCS) of the Initial Operating Section (IOS) in the California High-Speed Rail Program's 2012 and 2014 Business Plans. In the 2016 Business Plan (2016 Plan), the Authority renamed the IOS to be constructed as the Silicon Valley to Central Valley line (Valley to Valley) which runs from north of Bakersfield to San Jose and includes the CVP. The CVP will not include a high-speed operating service; therefore, this CVPFP references the Valley to Valley line, where appropriate, to provide context within the wider program of the CVP. For the purposes of creating this document, the June 2016 Financial Contribution Plan (FCP) has been used as a reference and all data is sourced from that document. The map below shows the alignment of the CVP.

Previously the scope of the CVP included construction of an estimated 130 miles of civil works and track. The CVP described in this CVPFP is approximately 119 miles in length. The CVP constitutes the first leg of the Phase 1 high-speed rail program, which involves the future construction of approximately 520 miles between San Francisco and Los Angeles/Anaheim. The scope of the grant agreements includes Tasks 1-10, which are described in further detail in Section B of this CVPFP.

ARRA and FY 10 Grant Agreement Tasks:

1. Environmental Review
2. Preliminary Engineering (PE)
3. Other Related Work Needed Prior to Start of Construction
4. Project Administration and Indirect Costs (100% complete)
5. Program, Project, and CVP Construction Management
6. Real Property Acquisition and Environmental Mitigation
7. Early Work Program (removed in Amendment 6 of the ARRA Agreement)
8. Final Design and Construction Contract Work for CVP
9. Interim Use Project Reserve
10. Unallocated Contingency

Map 1: Central Valley Project

Selection of the Central Valley Project

The Authority submitted applications for federal grant funds under ARRA and FY10 for four sections:

- San Francisco to San Jose
- Merced to Fresno
- Fresno to Bakersfield
- Los Angeles to Anaheim

The Central Valley sections were selected as initial construction sites and were prequalified for funding. To ensure that both federal criteria and conditions in Proposition 1A (the state's funding resources), the Authority and the FRA determined that using ARRA funds for construction in the Central Valley would be the most advantageous financial funding strategy. ARRA funds will be used for both construction and project development activities while FY10 funds will be used for construction and program management activities.

Beginning construction in the Central Valley is an important first step for the high-speed rail system, as it will create the backbone of the statewide high-speed rail system; from there the high-speed rail will be extended north and south to complete the first true high-speed rail system in the nation.

Project History

In September 2012, the FRA issued a Record of Decision (ROD) approving the Hybrid Alternative alignment for the Merced to Fresno project section, which was selected by the Authority's Board of Directors in May 2012. The Final EIR/EIS for the Merced to Fresno project section Hybrid Alternative is available at:

http://www.hsr.ca.gov/Programs/Environmental_Planning/final_merced_fresno.html

In June 2014, the FRA issued a ROD approving the alignment for the Fresno to Bakersfield project section, which was selected by the Authority's Board of Directors in May 2014. The Final EIR/EIS for the Fresno to Bakersfield project section is available at:

http://www.hsr.ca.gov/Programs/Environmental_Planning/final_fresno_bakersfield.html

As with many projects of this magnitude, the initial implementation stages often reveal unknowns that require adjustment strategies. Some of these discoveries have worked in favor of the project and some have presented challenges. The Authority's experience with the overall delivery to date has resulted in lessons learned as well as best practices.

In 2013, the Authority initiated the competitive design-build (DB) process for the first three construction contracts for the Central Valley.

In August 2013, the Authority executed its first DB contract, known as Construction Package 1 (CP 1). CP 1 consists of a 29-mile segment from Avenue 17 in Madera south, to East American Avenue in Fresno.

In April 2014, the Authority released Request for Proposals (RFP) for Construction Package 2-3 (CP 2-3), the next 65 miles from Fresno heading south to one mile north of the Tulare-Kern County line (north of Bakersfield).

In January 2016, the Authority announced its intent to award the contract for construction on Construction Package 4 (CP 4) to a DB consortia, California Rail Builders. The scope of CP 4 will run approximately 22 miles through the Central Valley, from one mile north of the Tulare-Kern County line to Poplar Avenue in Shafter, north of Bakersfield. The full Notice to Proceed was issued on April 15, 2016.

The official groundbreaking of construction for the Central Valley line was held on January 6, 2015 in Fresno. In the months that followed, the Authority has advanced DB, secured ROW parcels, attained permits, continued geotechnical investigations essential to structural design, demolished structures, and relocated utilities along the ROW, all in preparation for the construction of dedicated high-speed rail trackways and bridges. The CVP is anticipated to be fully operational, as part of the Valley to Valley line, by 2025.

Recent Progress

With construction work on the CVP now well underway, a comprehensive set of project management, finance, and risk reports have been developed and are updated monthly, reviewed by the Finance and Audit Committee of the Board, and posted to the Authority's website:

http://www.hsr.ca.gov/Board/monthly_fa_committee_meeting.html

Highlights of recent progress on the project include:

Pre-construction/Development Phase Activities

The federal grants have funded pre-construction/development phase activities both in the area of the CVP and throughout other Phase 1 segments. Tasks 1 through 4 comprise this phase. Additional details may be found in Section B of this Plan. The status of key activities is summarized below.

Environmental Review*	The Authority has eight project-level EIR/EIS studies under way for Phase 1 of the system, two of which are supplemental EIR/EIS to the already approved Records of Decision for Merced to Fresno and Fresno to Bakersfield.
Preliminary Engineering (PE)	The Authority, in coordination with the FRA, is completing PE for all Phase 1 sections. The Authority, with assistance from their rail delivery partner, conducts ongoing oversight of the Regional Consultants (RCs) performing the work.
Other Related Work Needed Prior to Start of Construction	In the area of the CVP the Authority has undertaken such activities as ROW acquisition support and construction planning/procurement support, including coordination with other federal, state and local agencies, and negotiation with rail line owners and operators. Station area planning throughout Phase 1 areas also is included in this task and will continue past the start of construction.
Project Administration and Statewide Cost Allocation Plan (SWCAP)	The grant agreements permit the Authority to seek reimbursement for administrative costs, as well as costs

	incurred from other state agencies that provide services to the Authority (e.g., the DOF, the Department of General Services, and the Department of Justice). Task 4 has been completed and is closed.

** The environmental review process is being conducted in accordance with the requirements of the National Environmental Policy Act (NEPA), the California Environmental Quality Act (CEQA), Section 106 of the National Historic Preservation Act, Section 4(f) of the Department of Transportation Act (49 U.S.C. 303), and other applicable environmental laws and regulations (collectively NEPA/CEQA)*

Construction Phase Activities

The federal grants have funded construction phase activities for the CVP. Tasks 5 through 10 comprise this phase. Additional details may be found in Section B of this Plan. The status of key activities is summarized below.

Construction and Project Management	The final design for CP 1 is complete and a prioritized list of construction sites were identified in conjunction with ROW acquisitions in an attempt to recover lost time. The cost of CP 1 is trending negatively due to three of the cost risks originally identified in the contract contingency analysis. The risks, and associated mitigation measures to manage them, are described more fully Appendix 5 and 6. The Authority has built upon this experience to improve both the management and implementation of the other construction contracts in the Central Valley.
Real Property / Right of Way Acquisition	The high-speed rail program requires the acquisition of an unprecedented number of parcels of land associated to one project. Based on lessons learned from CP 1, a more efficient process was implemented that has allowed the Authority to significantly increase the rate of parcels acquired per month. The Authority is on schedule with respect to the CP 2-3 and CP 4 contracts. As of June 30, 2016, the Authority has secured legal possession of 807 parcels with 737 delivered to the design-builder. The Authority is focused on acquisition and delivery of crucial early construction parcels through utilization of settlement teams and partnering with the design-builders.
Third Party Agreements	Negotiations for third party agreements (railroads, utilities and others) proved to be more difficult than anticipated. Mitigation strategies were implemented successfully so that key agreements with the railroads and the utility companies (power, water and communications) were completed in order to begin construction.

Legal	In July 2014, the California 3rd District Court of Appeal ruled in the Authority's favor on two lawsuits relating to our ability to access Proposition 1A bond funds. Subsequently, in October of 2014, the California Supreme Court chose not to review the lawsuits, making the Court of Appeal decision final.
Partners	The Authority continues to work with the California Transportation Agency (CalSTA), California Department of Transportation (Caltrans), and statewide rail partners to advance potential early use of the CVP. These planning efforts are progressing to satisfy FRA's requirement for independent utility in the event the Authority is unable to fund the remainder of the Central Valley line. These efforts include identifying all elements, stakeholder roles and responsibilities, and costs necessary for an operational CVP.

Future Activities in the Central Valley

The Authority anticipates undertaking the following activities by 2020:

- Nearing completion of construction in the Central Valley, including electrification and signaling
- Preparing for the delivery and testing of our first prototype high-speed trainsets
- Constructing local stations
- Outfitting the heavy maintenance facility in the Central Valley
- Beginning to expand construction beyond the Central Valley and planning for the start of service

Thereafter, the Authority will complete test track operations on the CVP in preparation for passenger service, and take delivery of the remaining part of the first trainset order.

Organization of the Plan

This plan is organized into five sections, as described in the table below. Additional appendices are provided at the end of the plan, as shown in the table of contents.

Section	Description of Contents
A: Sources of Funding	Describes the sources of funding available to the project in detail.
B: Annual Sources and Uses Projections	Presents annual sources and uses split out by task and by funding source for both construction and pre-construction/development phase activities. This section also describes in detail the individual tasks and the development of cost estimates.
C: Risks	Presents the project as reported by the Authority's risk management function. Detailed risks by categorization also are provided in the appendices.
D: Costing Methodology	Addresses projected capital and operating costs and revenues for the CVP (as part of the Silicon Valley to Central Valley line), and describes key assumptions and methodologies.
E: Interim Use Reserves	Describes the interim use and independent utility options available to the project.

A. Sources of Funding

Demonstrates Authority has identified the sources of funding other than that provided through this Agreement required to complete construction of the Project and has a strategy to secure firm commitments of such funds… "fully committed" means a state legislature budget appropriation, enacted into law, with sufficient state match funding to fund, with FRA's match, the budget of the Project.

Identified Sources of Funding

The estimated capital cost of the CVP in year-of-expenditure (YOE) dollars is approximately $5.98 billion (a detailed sources and uses is contained in Section B) and will be fully funded from the following sources in compliance with the terms and conditions associated to each source.

- Federal grants authorized under the ARRA and FY 10.
- State general obligation bonds authorized under the Safe, Reliable High-Speed Passenger Train Bond Act for the 21st Century (Bond Act) approved by California voters as Proposition 1A in 2008.
- State Cap and Trade funds authorized through the Budget Act of 2014 (SB 852 and SB 862).

Combined Funding Sources

Exhibit A-1. Funding for the CVP Planning Costs

Central Valley Project Planning	$'000s
Funding Sources	
FY10 Grant Federal	$0
ARRA Grant Federal	$610,176
State	$364,724
Local	$52,100
Total	**$1,027,000**

Source: Submitted FCP Report June 2016 (Funding Contribution Plan) (pg. 9 of 18)
Note: State Match and Other State Funds, above, include Prop 1A and Cap & Trade

Exhibit A-2. Funding for CVP Construction Costs

Central Valley Project Construction	$'000s
Funding Sources	
FY 10 Grant Federal	$928,620
ARRA Grant Federal	$1,942,380
State Match and Other State Funds	$3,109,047
Local Match	$-
Total Construction	**$5,980,047**

Source: Submitted FCP Report June 2016 (Funding Contribution Plan) (pg. 9 of 18)
Note: State Match and Other State Funds, above, include Prop 1A and Cap & Trade

In addition to appropriated funds, the Authority receives annual income from leases relating to Right of Way that it owns. The money is deposited into a revolving account and proceeds are used to further eligible Project objectives.

Federal Funding Summary

The ARRA and FY10 federal grants include $1.94 billion and $928.62 million, respectively, for construction activities associated with the CVP, totaling $2.87 billion; ARRA also allocates $610.2 million for Project Development activities such as pre-engineering and federal and state environmental approvals (e.g., PE/NEPA/CEQA1) associated with Phase 1 of the system, described later in this CVPFP. Details of the allocation of these funds to various project segments can be found in Section B of this Plan.

State Funding Summary

Multiple state and local funding sources are described in this CVPFP. California's Proposition 1A funds include $2.6 billion, specifically appropriated for CVP construction activities, which were committed through the enactment of SB 1029, passed by the California State Legislature and signed by Governor Brown in July 2012. These funds also may be used to meet the federally-required match. The State also is providing $364.7 million in Proposition 1A funds as matching funds for the development phase of the CVP and other Phase 1 segments, and local sources are providing $52.1 million for the development phase (Task 3, specifically). See "Receipt of Firm Funding Commitments," below, for additional details regarding the SB 1029 appropriations. Additional state funds of $660.3 million will be made available for costs related to the final design and construction work for the CVP (Task 8). See Section B, Exhibit B-2, for the Cost Summary Table showing allocation of these federal, state, and local funds to the CVP construction and Phase 1 development costs.

[1] PE: Pre-engineering; NEPA: National Environmental Policy Act; and CEQA: California Environmental Quality Act.

Proposition 1A

The Bond Act authorizes the state to issue $9.95 billion of general obligation bonds, $9 billion of which will be used to build the high-speed rail system. Proposition 1A bond proceeds currently fund the environmental, planning, engineering, and administrative operations of the Authority and will also contribute to the construction of the high-speed rail system.

The remaining $950 million authorized under Proposition 1A is allocated for capital improvements to commuter and intercity rail lines such as connectivity, preliminary engineering, ROW acquisition, and the construction of tracks, structures, power systems, and stations. Additionally, rolling stock and related equipment, as well as other capital-related facilities and equipment, are permissible expenditure purchases with these funds.

Several conditions must be met before the STO will sell Proposition 1A bonds. The Legislature must appropriate the budget for the expenditure of the future bond proceeds. SB 1029 satisfied this condition for California's high-speed rail project. To date, the State has sold $1.084 billion of Proposition 1A bonds for Authority administrative purposes and connectivity projects related to the high-speed rail project.

Proposition 1A stipulates that bond proceeds may not be used for more than 50 percent of the total cost of construction of each corridor or usable segment of the system. In addition, Proposition 1A establishes caps on the amount of funds, currently at 7.5 percent, that may be expended by the Authority for preliminary engineering, planning, certain acquisitions of real property and right of way and improvement thereof and environmental studies. Proposition 1A also limits the Authority's use of bond proceeds for administrative purposes to 2.5 percent with a possible increase to 5 percent with legislative approval.

Proposition 1A establishes a multi-step process that must be completed prior to the issuance of bonds to construct the high-speed rail project. The Authority must meet pre-appropriation review requirements before the State Legislature will appropriate funds for the segment. Following appropriation, the High-Speed Finance Committee authorizes the issuance of the bonds. The Authority also must meet a pre-expenditure review requirement prior to committing bond proceeds for construction purposes.

The pre-appropriation review process is codified in Streets and Highways Code (S&H) section 2704.08(c), which requires the Authority to submit a detailed funding plan (the Funding Plan) to the Director of Finance, the independent Peer Review Group[2] and the fiscal and transportation policy committees in

[2] The Peer Review Group is established under Section 185035 of the Public Utilities Code. The Peer Review Group is comprised of eight independent members: Two individuals with experience in the construction or operation of high-speed trains in Europe or Asia (designated by the State Treasurer); two individuals with engineering and construction of high-speed trains and one with experience in project finance (designated by the State Controller); one representative from a financial services or financial consulting firm (designated by the State Director of Finance); one representative with experience in environmental planning (designated by State Secretary of Business, Transportation and Housing); and two expert representatives from agencies providing intercity or commuter passenger train services in California (designated by the State Secretary of Business, Transportation and Housing). The purpose of the Peer Review Group is to review the planning, engineering, financing and other elements of the Authority's plans and issue an analysis of appropriateness and accuracy of the Authority's assumptions and an analysis of the viability of the Authority's financing plan.

both houses of the State Legislature 90 days prior to submitting the initial request for appropriation of bond proceeds for construction phase costs. The detailed Funding Plan must be approved by the Authority's Board of Directors.

In addition, pursuant to S&H section 2704.08(d), prior to committing any bond proceeds for construction expenditure purposes, the Authority shall submit another detailed funding plan (the Expenditure Funding Plan), highlighting any changes from the original Funding Plan and meeting other statutory requirements. The Expenditure Funding Plan will be submitted to the Director of Finance and the Chairperson of the Joint Legislative Budget Committee for review and is subject to approval by the Director of Finance within 60 days.

The Authority's appropriation request for the CVP construction under the initial Funding Plan was included in the FY 2012-13 budget, in the amounts of approximately $2.6 billion in state bond proceeds from the High-Speed Passenger Train Bond Fund, in addition to approximately $3.2 billion in federal funds that have been allocated and are received under the advanced payment agreement. The Authority's appropriations also include additional state and federal funding for the pre-construction, development phase activities in other sections. The Authority's FY 2012-13 appropriations were contained in Senate Bill 1029 (SB 1029), which the Governor signed on July 18, 2012, authorizing the use of a total of $4.7 billion of state bond funds for the following rail purposes:

1. Match federal and local funds for the development and construction of the California High-Speed Rail System; and
2. Fund development and construction of other local transit improvements eligible for $2.1 billion in state funding under the Bond Act.

Prior to issuance of state bonds for project construction, the Authority must comply with the pre-expenditure review process as discussed in S&H section 2704.08(d) as noted above.

In addition, pursuant to S&H section 2704.12 and subsequent sections, the High-Speed Passenger Train Finance Committee[3] (Committee) must authorize the issuance and sale of the appropriated bonds. Once the Committee approves the issuance and sale, the State Treasurer will obligate enough bonds from future state general obligation bond transactions to meet the Authority's cash flow requirements. For more information on the provisions of Proposition 1A see Appendix 1.

The Authority works closely with the California Department of Finance (DOF) to develop cash flow projections for the Authority's funding needs. The Authority completes a biannual bond survey that is submitted to the DOF to identify its needs for bond proceeds for the next five fiscal years.

The DOF will then include the sale of general obligation bonds as part of its cash flow projections, which are submitted to the State Treasurer's Office (STO). Funding needs are then incorporated when the STO determines the timing and amount of the State's general obligation bond sales. The Proposition 1A bonds are sold as part of a combined issuance of State of California general obligation bonds for a variety of voter-approved purposes.

The STO manages the issuance of the State's general obligation financings using two tools – short-term commercial paper and long-term bonds. General obligation commercial paper has maturities of under

[3] The Committee consists of the State Treasurer, the Director of Finance, the Controller, the Secretary of Transportation and the Chairperson of the Authority. The State Treasurer serves as Chairperson of the Committee.

270 days, and long-term general obligation bonds typically have final maturities of ten to 30 years. Commercial paper may be issued as frequently as weekly and then may be "refunded" by issuance of the long-term bonds on a less frequent basis (e.g., quarterly). In combination, these tools enable the STO to manage its bond issuance capacity to cost-effectively meet the needs of various state programs, such as the high-speed rail program, that rely on timely receipt of bond proceeds to advance critical projects.

In order to carefully manage the use of the State's limited Proposition 1A bonding authority, the Authority has worked with the DOF, the STO and the State Controller's Office (SCO), as needed, to further enhance and streamline cash management processes. The resulting enhancements enable the Authority's cash flow projections to consider the overall expenditures needed, the expenditures that will be eligible for federal funds, and the receipt of those federal payments, which can provide future cash flow for subsequent project expenditures. The Authority has provided its cash flow projections through fiscal year 2015-16, and includes the funding needs for the CVP over that period. The Authority's cash flow projections are updated on a quarterly basis, to provide adequate and timely funding for the Authority's needs.

Cap and Trade Revenues

State Cap and Trade funds are authorized through the Budget Act of 2014 (SB 852 and SB 862).

In addition to the State's previous approval of funding from the Bond Act, 2014 brought a new and continuing source of expanded state funding for the program. On June 20, 2014, the Governor signed the Budget Act of 2014 (SB 852 and SB 862), which included an appropriation of proceeds from the State's Cap and Trade program to various programs and projects that will reduce greenhouse gas emissions in furtherance and accordance with AB 32, the California Global Warming Solutions Act of 2006. Specifically, SB 852 appropriated $872 million in Cap and Trade auction proceeds from the Greenhouse Gas Reduction Fund (GGR Fund) in Fiscal Year (FY) 2014-15, with $250 million going to the high-speed rail project. SB 862 also appropriated $400 million to the Authority to be made available in FY beginning 2015-16, and continuously appropriated until expended. These one-time appropriations are augmented by the Cap and Trade Expenditure Plan (Plan), which established a programmatic structure for the continuous appropriation of annual Cap and Trade proceeds from the GGR Fund. The ongoing investments made by the Plan align with the investment areas identified by the California Air Resources Board's *Cap and Trade Auction Proceeds Investment Plan: Fiscal Years 2013-14/2015-16,* to reduce greenhouse gas emissions that contribute to climate change and cut other forms of air pollution, particularly in disadvantaged communities. Under the provisions of SB 862, the Authority will receive 25 percent of Cap and Trade revenues on an on-going basis (the continuous appropriation). To date the Authority has received the following Cap and Trade appropriations:

- $250 million, one-time appropriation in FY14/15
- $600 million in the Governor's budget for FY15/16 based on the continuous appropriation
- $500 million in the Governor's budget for FY16/17 based on the continuous appropriation plus $100 million of a $400 million one-time appropriation, for a total of $600 million in FY16/17.

The continuous appropriation provides the Authority with the flexibility to either supplement grant funds to pay for planning and construction costs, and/or to repay loans taken out by the Authority. CVP costs that meet the conditions set out in SB 862 are eligible for the Cap and Trade funding. This funding also is available for costs of the other elements of the Phase 1 system, which may be constructed concurrently with the CVP. An extract of SB 862 is provided in Appendix 4.

Receipt of Firm Funding Commitments

The Authority's strategy to secure firm commitment of Proposition 1A bond proceeds for the CVP was to request appropriation of all necessary funding for the project through the state budget process in the 2012-13 budget year. The state budget process is described in detail in Appendix 2.

To secure the CVP construction funding, the Authority submitted the Initial Funding Plan and the Budget Change Proposals (BCPs) necessary for appropriation of these and other program funding requirements as part of the FY 2012-13 budget process. Ultimately, the Authority's requested appropriations for this period were contained in SB 1029, which was approved by the Legislature and signed into law by Governor Brown on July 6, 2012.

SB 1029 included the appropriation of the federal and state funding necessary for the construction of the CVP. See Exhibit A-3 below, for appropriations for the High-Speed Rail project. This bill also specifies that the Authority must meet a variety of reporting and review requirements over the course of the CVP and beyond, including a bi-annual project update report (due in March in years when a Business Plan is not released), a staff management report, a project budget certification, and a risk analysis.

Exhibit A-3. High-Speed Rail Project Appropriations Under SB 1029 (Budget Act of 2012)

Amount	Usage
$5.8 Billion	Begin construction of the Initial Operating Segment (IOS) of the High-Speed Rail System in the Central Valley (now called the Central Valley Project or First Construction Section). Of this amount, $3.2 billion of these funds are Federal Funds and $2.6 billion are Proposition 1A bond funding. This appropriation is continuous, until expended.

Source: SB 1029, for fiscal year 2012-13 State Budget

Because the Authority is simultaneously moving forward, pursuant to the Business Plan, with its plans for development of the program beyond the CVP, it also has been necessary to pursue new funding in addition to existing federal grants and state bond proceeds. As described earlier in this plan, with the enactment of SB 862, a new dedicated state funding source is available to the program through specified portions of the Greenhouse Gas Reduction Fund derived from revenues of the State's Cap and Trade Program.

B. Annual Sources and Uses Projections

The financial plan shall provide (in year-of-expenditure dollars) finalized annual projections for the sources and uses of all funds, during the development and construction phases of the project.

Annual Sources and Uses

The annual sources and uses of funds for the development phase of Phase 1 and the construction of the CVP are detailed in the Funding Contribution Plan (FCP). The FCP is provided quarterly to the FRA, as a requirement of the grant agreement. The Authority works with the FRA in an ongoing collaboration to further refine the FCP's content and format. Future versions of the FCP will reflect increased detail that includes information on the use of funding sources by FRA grant task.

The CP 1 and CP 2-3, and SR-99 Realignment Project (a 2.5-mile project within the limits of CP 1 managed by Caltrans) cost forecasts are based on approved cost-loaded schedules. These cost forecasts are monitored monthly for variances between the planned value and the earned value. Cost forecasts are adjusted monthly to account for variances, trends and changes. The Authority's rail delivery partner supports the Authority in providing and confirming this information monthly. The cost-loaded schedule for CP 4, when approved, will be used for forecasting in 2017. Current CP 4 forecasts are based upon preliminary schedules, burn rates and project and construction management input.

The annual sources and uses are presented in Exhibit B-1, below, which also includes the annual sources and uses of funds broken out by Task 1 through 10 (descriptions sourced from grant agreements).

The sources and uses tables below represent historical and forecast expenditures provided to the FRA for the second quarter 2016 reporting period (FRA approved). This information has been further expanded to describe the two state funding sources that are presently available, Proposition 1A and Cap and Trade. On a periodic basis, the Authority will determine what state funding will be used to match available federal grant funding to best optimize the funding plans for the entire program. This may result in changes to the makeup of state funding sources, but not a reduction. This information will be captured in successive reports, which will update the forecast use of funds and expenditures as information becomes available. The Authority will determine how it allocates state funding sources by considering all funding needs for the program and allocating them as it deems most appropriate.

Exhibit B-1. Combined Sources and Uses - Phase 1 Project Development and CVP Construction

	SOURCES AND USES ($ 000's)	Period Start Period End	1-Jul-10 30-Jun-11	1-Jul-11 30-Jun-12	1-Jul-12 30-Jun-13	1-Jul-13 30-Jun-14	1-Jul-14 30-Jun-15	1-Jul-15 30-Jun-16	1-Jul-16 30-Jun-17	1-Jul-17 30-Jun-18	1-Jul-18 30-Jun-19	1-Jul-19 30-Jun-20	1-Jul-20 30-Jun-21
Sources													
Federal:													
	ARRA	2,552,556	22,845	33,528	89,528	279,115	115,532	1,110,020	901,987	-	-	-	-
	FY 10	928,620	-	-	-	-	-	-	-	-	432,739	309,382	186,499
	Total Federal	**3,481,176**	22,845	33,528	89,528	279,115	115,532	1,110,020	901,987	-	432,739	309,382	186,499
State & Local													
	Prop 1A	3,473,771	26,432	31,509	30,419	13,697	171,330	7,641	342,294	1,680,860	993,244	99,954	76,392
	Other/Local	52,100	-	-	-	-	-	-	37,700	14,400	-	-	-
	Total State And Local	**3,525,871**	26,432	31,509	30,419	13,697	171,330	7,641	379,994	1,695,260	993,244	99,954	76,392
Total Sources		**7,007,047**	**49,277**	**65,037**	**119,947**	**292,812**	**286,862**	**1,117,661**	**1,281,981**	**1,695,260**	**1,425,983**	409,336	**262,891**
Uses													
Task 1	Environmental Review	499,535	22,347	27,097	52,537	53,609	25,497	58,790	141,227	118,432	-	-	-
Task 2	PE 15% and 30% Design	337,362	26,314	33,525	42,068	45,317	10,744	53,459	61,658	64,276	-	-	-
Task 3	Other Related Work	189,426	616	4,415	25,342	13,437	(4,437)	5,994	88,731	55,328	-	-	-
Task 4	Project Administration (SWCAP)	678	-	-	-	660	18	-	-	-	-	-	-
	Pre-Construction Subtotal	1,027,000	49,277	65,037	119,947	113,023	31,822	118,242	291,616	238,036	-	-	-
Task 5	D/B Program Management	419,227	-	-	-	41,605	57,537	111,296	75,451	98,166	35,171	-	-
Task 6	Real Property Acquisition	852,274	-	-	-	74,367	116,264	300,990	250,176	104,478	6,000	-	-
Task 7	Early Work Program (2009 ARRA 50/50)	-	-	-	-	-	-	-	-	-	-	-	-
Task 8	D/B Contract Work	4,432,352	-	-	-	63,818	81,238	533,278	664,738	1,254,580	1,384,812	409,335	40,554
Task 9	Project Reserve	208,147	-	-	-	-	-	53,856	-	-	-	-	154,290
Task 10	Unallocated Contingency	68,047	-	-	-	-	-	-	-	-	-	-	68,047
	Construction Subtotal	5,980,047	-	-	-	179,790	255,040	999,420	990,365	1,457,224	1,425,983	409,335	262,891
Total Uses		**7,007,047**	**49,277**	**65,037**	**119,947**	**292,813**	**286,861**	**1,117,662**	**1,281,981**	**1,695,261**	**1,425,983**	409,335	**262,891**

Source: Submitted FCP Report June 2016 (Funding Contribution Plan) (pg. 11 of 18)
Note: Prop 1A funding sources line item includes Cap & Trade revenues for ease of presentation
Note: Small differences in sources and uses totals may occur due to rounding

Description of Tasks and Funding Sources for the High-Speed Rail Program

Below are presented descriptions of the Project Development tasks and the Construction tasks. Following the descriptions are tables presenting the federal, state, and local funding sources allocated for each task, and a segment-by-segment breakdown of the project development funding sources.

The **Project Development** phase of California's High-Speed Rail Program consists of four major tasks in the Authority's grant agreements; each task is included as part of the Phase 1 program in each of the eight sections of the system referenced below.

Project Section
San Francisco - San Jose
San Jose - Merced
Merced - Fresno
Fresno - Bakersfield
Bakersfield – Palmdale
Palmdale – Burbank
Burbank – Los Angeles
Los Angeles - Anaheim

The four major Project Development tasks are presented below:

Task 1 – Environmental Review. The environmental review process is being conducted in accordance with the requirements of the National Environmental Policy Act (NEPA), the California Environmental Quality Act (CEQA), Section 106 of the National Historic Preservation Act, Section 4(f) of the Department of Transportation Act (49 U.S.C. 303), and other applicable environmental laws and regulations (collectively NEPA/CEQA). FRA is the federal lead agency responsible for NEPA compliance, and the Authority is the state agency responsible for CEQA compliance. To satisfy both NEPA and CEQA, a combined environmental document is prepared—EIR (Environmental Impact Report) for CEQA and EIS (Environmental Impact Study) for NEPA. The combined environmental documents are referred to as EIR/EIS. The Authority has eight project-level EIR/EIS studies under way for Phase 1 of the system, two of which are supplemental EIR/EIS to the already approved Records of Decision for Merced to Fresno and Fresno to Bakersfield.

Task 2 – Preliminary Engineering (PE)***.*** The Authority, in coordination with the FRA, is completing PE for all Phase 1 sections described above. The Authority, with assistance from their rail delivery partner, conducts ongoing oversight of the Regional Consultants (RCs) performing the work. The RCs are guided by design criteria set forth in the technical memoranda for the system. Design consistency will be achieved by adherence to the design criteria as they develop preliminary engineering for procurement (and additional design work for discrete areas as needed and agreed to by FRA).

Task 3 – Other Related Work Need Prior to Start of Construction. In addition to the Environmental Review (Task 1) and Preliminary Engineering (Task 2) described above, the Authority will also complete the additional work required prior to start of construction, including ROW acquisition support, ridership forecasting, and construction planning/procurement support. For portions of the high-speed rail line where a defined general alignment has been

selected, the RC will conduct assessments to identify segments at risk of imminent development, or other changes in use that could significantly increase implementation costs. The RC will develop recommendations for protective advance acquisition consistent with state and federal requirements, and will perform necessary coordination with other federal, state, and local agencies and assist the Authority in making acquisitions to the extent such acquisitions have been approved and authorized by the Authority. As requested by the Authority, the RC will provide assistance in reaching agreement on terms of access to shared ROW with rail line owners and operators, shared capital and operating costs, types of improvement required to maintain existing operations while allowing high-speed train operations, and other critical matters such as liability indemnification, insurance requirements, and other operational matters. This work may include participating in ROW negotiations between BNSF and UPRR. Station area planning is included in this task to be initiated concurrent with Task 1 and would continue past the start of construction. High-speed rail investments in Southern California, as well as development and implementation of a small business program, which will continue past construction, also are included in this task.

Task 4 – Project Administration and Statewide Cost Allocation Plan (SWCAP). The grant agreements permit the Authority to seek reimbursement for administrative costs, as well as costs incurred from other state agencies that provide services to the Authority (e.g., the DOF, the Department of General Services, and the Department of Justice). Task 4 has been completed and is closed.

The **Construction** phase of the project consists of six tasks, presented below:

Task 5 – Program, Project, and Construction Management. This includes management, oversight, and reporting of all tasks necessary to complete the project, including coordination with appropriate local, regional, state, and federal agencies, railroad owners and operators within the project area, and outreach to local communities affected by the project. Specific construction management activities will include contract administration, submittal review, quality assurance inspection, materials inspection, management of claims and change orders, and review and approval of progress payment requests and final acceptance of the work. The Authority is also responsible for public communication and outreach to citizens, communities, and stakeholders during all aspects and phases of project design and construction.

Task 6 – Real Property Acquisition and Environmental Review. This task includes real property acquisition and associated activities that are not already covered under ROW Acquisition Support of the PE/NEPA/CEQA phase of the program. As of June 30, 2016, the Authority has secured legal possession of 807 parcels with 737 delivered to the design-builder. ROW estimates were developed in accordance with the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 as amended (Title 42, sections 4601-4655, of the United States Code) (Uniform Act), and its implementing regulations, Title 49, Part 24, of the Code of Federal Regulations. Any and all eminent domain acquisitions will be subject to State of California Civil Procedure. Acquisitions include ROW for track alignment and stations consistent with project requirements.

ROW estimates were prepared on a parcel by parcel basis considering the estimated real estate values of the impacted property, and include other compensatory factors as applicable, such as estimates of loss of business goodwill, relocation assistance, title/escrow costs, and property owner appraisals. The estimate also includes a 30 percent contingency. The actual expenditures will be based on approved appraisals and may include settlements through negotiations,

deposits for court-ordered possession, litigated settlements and/or trials. Each of these activities will be subject to a stringent review/approval process to ensure the fair, equitable treatment of property owners and the appropriate use of public funds.

Task 7 – Early Work Program. The Early Work Program included planning, design, coordination, negotiation, legal activities, as well as construction, land acquisition, implementation costs associated with utility relocation, site clearing/demolition, railroad track relocation, highway/roadway relocation/grade separations, environmental remediation/hazardous materials disposal, and environmental (NEPA/CEQA) mitigation. Activities in this task were redistributed among other tasks with Amendment 6 to the ARRA grant.

Task 8 – Final Design and Construction Contract Work. As currently envisioned, final design and construction contract work will be covered by up to four separate geographically-based design-build infrastructure contracts and at least one DB track-work contract.

Task 9 – Interim Use Project Reserve. This funding is sourced through the FY 10 grant and is reserved for future contingency purposes and requires FRA pre-approval prior to expenditure. The high-speed rail project is not yet at a point in time to include discussion on this Task in the CVPFP.

Task 10 – Unallocated Contingency. The Authority has allocated approximately 1 percent of the project budget as unallocated contingency. The Unallocated Contingency has yet to be allocated to specific tasks. The use of contingency funds will be described in a future Contingency Management Plan.

The **Allocation of Funds** among federal, state and local sources toward Phase 1 Project Development costs and CVP construction costs are detailed in the FCP. As noted previously, the FCP is updated on a quarterly basis to reflect recent Board approved decisions and/or revised projections. The Cost Summary Table reflects both Planning and Construction tasks as of June 30, 2016 and is presented here as Exhibit B-2, below. This table is followed by the Funding Allocation for Phase 1 Project Development costs, by segment, in Exhibit B-3.

Exhibit B-2. Cost Summary Table

Task Description	FY10 Grant Federal	ARRA Grant Federal	State	Local	Total	Additional State	Total
PHASE1 PROJECT DEVELOPMENT							
Task 1: Environmental Review	$ -	$ 269,327,113	$ 230,207,370	$ -	$ 499,534,483	$ -	$ 499,534,483
Task 2:Preliminary Engineering (PE)	$ -	$ 254,362,236	$ 82,999,427	$ -	$ 337,361,663	$ -	$ 337,361,663
Task 3:Other Related Work Needed Prior to Start of Construction	$ -	$ 85,809,008	$ 51,516,974	$ 52,100,000	$ 189,425,982	$ -	$ 189,425,982
Task 4: Project Administration and Statewide Cost Allocation Plan (SWCAP)	$ -	$ 677,872	$ -	$ -	$ 677,872	$ -	$ 677,872
PHASE1 SUBTOTAL	**$ -**	**$ 610,176,229**	**$ 364,723,771**	**$ 52,100,000**	**$ 1,027,000,000**	**$ -**	**$ 1,027,000,000**
FIRST CONSTRUCTION SECTION							
Task 5: Program, Project and FCS Construction Management	$ 44,500,052	$ 177,459,725	$ 197,267,290	$ -	$ 419,227,067	$ -	$ 419,227,067
Task 6: Real Property Acquisition and Environmental Mitigation	$ 8,984,784	$ 459,319,643	$ 383,970,052	$ -	$ 852,274,479	$ -	$ 852,274,479
Task7: Early Works	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Task 8: Final Design and Construction Contract Work for the FCS	$ 758,573,531	$ 1,251,744,242	$ 1,761,739,722	$ -	$ 3,772,057,495	$ 660,294,844	$ 4,432,352,339
Task 9: Interim Use Project Reserve	$ 108,023,253	$ 53,856,392	$ 46,267,108	$ -	$ 208,146,753	$ -	$ 208,146,753
Task 10: Unallocated Contingency	$ 8,538,380	$ -	$ 59,508,288	$ -	$ 68,046,668	$ -	$ 68,046,668
SUBTOTAL	**$ 928,620,000**	**$ 1,942,380,002**	**$ 2,448,752,460**	**$ -**	**$ 5,319,752,462**	**$ 660,294,844**	**$ 5,980,047,306**
TOTAL	**$ 928,620,000**	**$ 2,552,556,231**	**$ 2,813,476,231**	**$ 52,100,000**	**$ 6,346,752,462**	**$ 660,294,844**	**$ 7,007,047,306**

Source: Submitted FCP Report June 2016 (Funding Contribution Plan) (pg. 9 of 18)
Note: Additional state funding sources line item consists of Cap & Trade revenues

Exhibit B-3. Funding Allocation for Phase 1 Project Development by Segment

Task Description	FY10 Grant Federal	ARRA Grant Federal	State	Local	Total
PHASE 1 PROJECT DEVELOPMENT					
PROJECT DEVELOPMENT					
RDP Phase 1	$ -	$ 115,928,523	$ 71,738,140	$ -	$ **187,666,663**
Resource Agencies/Legal Costs Phase 1	$ -	$ 111,360,180	$ 71,197,489	$ -	$ **182,557,669**
San Francisco - San Jose	$ -	$ 19,941,735	$ 12,749,634	$ -	$ **32,691,369**
San Jose Merced	$ -	$ 61,514,747	$ 39,329,101	$ -	$ **100,843,848**
Merced - Fresno	$ -	$ 28,533,724	$ 18,242,875	$ -	$ **46,776,599**
Fresno Bakersfield	$ -	$ 53,415,994	$ 34,151,210	$ -	$ **87,567,204**
Bakersfield Palmdale	$ -	$ 74,450,095	$ 47,599,243	$ -	$ **122,049,337**
Palmdale - Los Angeles	$ -	$ 79,994,622	$ 51,144,100	$ -	$ **131,138,722**
Los Angeles - Anaheim	$ -	$ 26,858,737	$ 17,171,979	$ -	$ **44,030,716**
Other Planning Costs					
Project Administration and Indirect Costs	$ -	$ 677,872	$ -	$ -	$ **677,872**
Station Area Planning	$ -	$ 5,500,000	$ 1,400,000	$ 4,100,000	$ **11,000,000**
LAUS/Southern CA Improvements	$ -	$ 32,000,000	$ -	$ 48,000,000	$ **80,000,000**
SUBTOTAL	**$ -**	**$ 610,176,229**	**$ 364,723,771**	**$ 52,100,000**	**$ 1,027,000,000**

Source: Submitted FCP Report June 2016 (Funding Contribution Plan) (pg. 10 of 18)

Exhibit B-3 provides cost information for planning activities relating to the CVP; program-wide costs (RDP Phase 1 – Resource Agencies/Legal Costs Phase 1/Other Planning Costs) are not separated by geographical segment.

Development of Cost Estimates

The cost estimates summarized above in Exhibit B-1 are based on site-specific route alignments developed during Preliminary Engineering. The methodology for preparing estimates has been applied to both the CVP and the full Valley to Valley line of which the CVP is a part. Although the costs for improvements have been calculated and reviewed, they are subject to changes in economic conditions that occur over time and affect actual prices, either positively or negatively. The cost estimates are the product of two key items described below:

Quantities—This is the quantity of materials required to construct the project's key elements. The materials quantity depends greatly on the ground conditions where the project will be built, land use and availability, geotechnical conditions, community and stakeholder impacts, and environmental challenges requiring realignment or special designs. These factors are highly site-specific and subject to significant change during the environmental process and as communities participate in key decisions. The FRA established standard cost categories (SCCs) that must be included in a cost estimate for federally funded rail projects. The standard categories are as follows:

- 10 - Track structures and track
- 20 - Stations, terminals, intermodal
- 30 - Support facilities; yards, shops, administrative buildings
- 40 - Site work, right-of-way, and existing improvements
- 50 - Communications and signaling
- 60 - Electric traction
- 70 - Vehicles
- 80 - Professional services
- 90 - Unallocated contingency
- 100 - Finance charges

It should be noted that not all of the above cost categories apply to the CVP. The CVP does not include elements that would be required for passenger service; however, these elements would be added at the point of expansion to an initial operating section[4], which is the subject of Section D of this CVPFP.

Composite unit prices—These are the prices associated with labor, equipment and materials necessary to construct a discrete element of high-speed rail system (i.e. elevated guideway, tunnel, station, systems component, etc.). These composite unit prices are measured in "route miles" or "each" and some such as stations or electrical substations may be quite complex and may include dozens of elements, each of which must be separately priced. The prices also must reflect the specific market for each product and material, such as the underlying commodity and labor costs, at the time anticipated for procurement. Composite unit prices for more than 300 separate cost items have been developed for the cost estimates.

[4] Per the requirements of the grant agreements with FRA, if the Central Valley line is not possible to fund by the time construction in the Central Valley is complete, the Authority will work with Cal STA, Caltrans and the statewide rail partners to ensure use of the infrastructure, by appropriately planning the necessary actions. The decision of early use will be jointly made among FRA and the state of California.

Within the reporting period of this document, two DB contracts have been awarded: Construction Package 1 (CP 1) and Construction Package 2-3 (CP 2-3). In addition, advancement of final design on CP 1 added insight into contractor's construction methodologies, allowing refinement of estimating assumptions applied to other project sections as appropriate. Evaluation of the competitive bid environment has led to an assessment of cost factors such as contractor's indirect costs and margin markups, further refining underlying assumptions used in development of composite unit prices.

C. Risks

A detailed assessment of the risks facing the Central Valley Project during the construction (including risks such as capital cost overruns, revenue shortfalls, and maintenance cost overruns), along with proposed actions for mitigating or accommodating such risks (including assessment of additional funding sources available to compensate for potential capital financing shortfalls)

The Authority is committed to providing a successful high-speed rail system that meets and/or exceeds the expectations of elected officials, community stakeholders and the public at large. Accordingly, the Authority recognizes that effective management of risks is one way to significantly increase the chances of delivering a successful program and has developed a Risk Management Program for this purpose.

Risk Management and Project Controls Office

The Risk Management and Project Controls Office identifies key risks and respective mitigation plans, and prioritizes actions. These items are documented in the Program Risk Register, which is continually updated, reviewed with management at stipulated intervals, and used as the basis of reporting.

The Risk Management Program's objectives are to:

- Codify the process by which the Authority responds to circumstances that could significantly delay or halt progress
- Increase transparency regarding challenges to project plans and objectives
- Capture project opportunities
- Satisfy legal and regulatory requirements and meet the needs and expectations of other stakeholders
- Rationalize allocation of resources including cost and schedule contingencies
- Assist in the preparation and implementation of risk mitigation plans for the identified program-wide risks

A revised Risk Management Plan (RMP) was finalized on June 4, 2013 and provided to FRA. This RMP updated and formalized procedures for identifying, assessing, evaluating, documenting, and managing risks that may eventuate in the project. These include specific engineering, environmental, planning, ROW, procurement, construction, organizational, stakeholder, budget and schedule risk, and any other potential inabilities to deliver the required results.

In furtherance of the above objectives, the RMP provides the following:

- A comprehensive RMP that defines roles and responsibilities for risk management and addresses the process by which the authority will identify and quantify project risks, implement and track risk response activities, and monitor and control risks throughout the duration of each project.
- Quantification of the effect of identified risks in financial terms.
- Development of documents to track identified risks and related mitigation steps.
- Plans for regularly updating its estimates of capital and support costs.
- Plans for regularly reassessing its reserves for potential claims and unknown risks, incorporating information related to risks identified and quantified through its risk assessment processes.
- Plans for regularly integrating estimates for capital, support costs, and contingency reserves in required report.

The RMP also defines standards for risk management deliverables that is part of the approval process:

- Deliverables are presented within a substantively complete and appropriate engineering or project management context.
- Deliverables are appropriately quantified, fully integrated, traceable and consistent, and compatible with findings or stated facts.
- Where risk management deliverables are qualitative in nature, they are properly structured and clearly identified with respect to authorship.
- Material analytic results of risk analysis are capable of independent analysis or reproduction using established methods and assumptions generating similar analytic results within an acceptable degree of imprecision or error.
- Funding agencies can assess whether it is appropriate to question the adequacy, accuracy and completeness of the third-party data, information, modeling or analysis.

The RMP defines the Authority's risk management policy, the processes to be used to execute the Risk Management Program effectively and the means to judge the quality of its deliverables.

In addition to the 2016 Business Plan and Risk Management Plan that have been previously provided to FRA and incorporated by reference, Appendix 4 includes a matrix of funding risks and top risks as requested by FRA.

2016 Risk Management Overview

The Risk Management and Project Controls Office has a direct reporting relationship established with the Board of Directors. This direct reporting enables daylighting to the risk management approach and encourages informed decisions.

The key risk areas that the Authority has identified and manage on an ongoing basis vary based on the individual section's design or construction phase. An overview of the most significant risks identified are below. (The Authority has adopted management strategies and mitigations to address these risks.)

- **Program Risks**
  - Financing and Funding
  - Legal and Litigation
  - Decline in Stakeholder Support
  - Ridership and Revenue
  - Operations and Maintenance
  - Capital Rehabilitation and Replacement Costs Differ from Forecasts
- **Construction Risks**
  - Right of Way Acquisition Delays
  - Environmental
  - Third Party Agreements
- **Technical Risks**
  - Engineering and Environmental
  - Alignments Passing through Energy Project Areas
  - Availability of Traction Power Substations to Supply Power for Operations

The Authority performed the pre-bid schedule and cost risk analyses for each of the construction packages. The identification of major risks and contingency recommendations in these pre-bid analyses were validated by the eventual contractor's scope and schedules. Decision making is based on a data-driven analysis approach. For example, the probabilistic analysis performed on the containment of railroad intrusion protection barrier walls provided the Authority, the FRA and adjacent railroads an additional mechanism to make informed decisions.

2016 Risk Management Trends

The Authority has identified various trends, both positive and negative, to the program cost and schedule milestones including, but not limited to, the following:

- The ROW parcel acquisition risk analysis performed on the ROW acquisition forecast identified potential delays to our schedule. Reviews highlighted the need for early identification and mitigation of actual right of way risks as well as other project risks. An alternative forecast was developed to reflect potential delays that were outside of the Authority's control and were more in line with recent trends.
- The cost risk analyses for CP 1 illustrates cost overruns in three of the risk areas originally identified in the CP 1 contract contingency analysis. These cost risks relate to intrusion protection and other requirements requested by the adjacent railroads, relocation of utilities, and ROW acquisition. The updated cost risk analysis for CP 1 indicates the potential to exceed the current contingency level for the contract.

D. Costing Methodology

The Finance Plan(s) shall document projected capital and operating costs and revenues, and detail key assumptions and methodologies.

The 2016 Business Plan indicates that high-speed rail operations are planned to commence on the CVP upon completion of the Silicon Valley to Central Valley line which is consistent with the Authority's sequenced approach to completing Phase 1. The CVP is not contemplated to operate a revenue service upon initial completion; instead it will be used as a test track until it is connected to the Silicon Valley to Central Valley line in 2025. However, in case of a significant delay in the Silicon Valley to Central Valley construction progress, the Authority has prepared the *First Construction Package Utilization Plan and Concept of Operations* document which describes the Authority's plan for how a non-high-speed operating service would be implemented. Additional information is located on page 33 of this document in the Interim Use Reserves section. Therefore, selected information relating to the Silicon Valley to Central Valley line is included here only to provide greater context for the CVP and to demonstrate operational viability.

The 2016 Plan recognized that circumstances had changed over the past two years since the prior plan, requiring a new approach and revision to the previous IOS plan. Most significantly, there is a combination of existing funding sources that allows the Authority to deliver high-speed service within the next 10 years. It is the Authority's statutory and fiduciary responsibility to utilize available funding in the most efficient and productive manner, and focus those resources on a segment that can be built within the limits of available funding. To do otherwise would mean that the State would be left with a segment that would not be complete, could not meet the statutory requirements, and/or that would not generate private sector participation.

The Authority will be building the CVP with existing and allocated resources. This approach is consistent with Authority principles and overarching objectives. Moving forward, the Authority will continue to evaluate new opportunities to fund, build, and bring into service the remaining segments as soon as possible.

Forecast Methodologies

This section describes methodologies used to produce the Authority's forecasts for capital costs, operating revenues, operating costs and capital maintenance (lifecycle) costs. The descriptions of these methodologies have been directly sourced from the 2016 Business Plan Section 5: Capital Cost Estimates, and Section 7: Forecasts and Estimates.

The forecasts for the Valley to Valley line, which includes the CVP, assume that operations running from San Jose to a station north of Bakersfield begin in 2025 (construction completed in 2024) and that operations on the entire Phase 1 system from San Francisco and Merced to Los Angeles and Anaheim begin in 2029.

Capital Cost Methodology and Refinements

Lessons learned from various construction package bids received by the Authority have been used to refine the Authority's cost estimate methodology. The best value bids for CP 1 through CP 4 were between 13 and 45 percent below engineer estimates. The differences between Authority estimates and final contractor bids include:

- The Authority adopted a conservative estimating approach to develop the construction cost estimates: bidders could propose Alternative Technical Concepts (ATCs) that were not included in engineer estimates; hence, bidders could reduce contingency levels that were assumed in engineer estimates.
- Favorable economic conditions in the state: after a significant economic slow-down during the recession, the construction market began to gain momentum and is better positioned to support large projects.
- Healthy, competitive environment in the industry: There was strong interest in the industry to be part of the construction of the first high-speed rail system in the country. The prestige attached to the high-speed rail program contributes to industry interest and increases competition for the contracts. The Authority received three or more bidding consortia for each procurement which contributed to driving the price down.
- Construction contracts in the Central Valley do not incorporate a high level of risk: The first three construction contracts are civil packages with little integration and technological risk.
- Significant updates and revisions to the system construction cost estimates have been made based on new technical concepts and a better understanding of the private sector's approach to pricing the project.
- New technical concepts were introduced in the design of the system which has driven overall estimated construction costs down: The Authority's procurement process provides that the state will own the intellectual property of all bidders, whether they win or not; the Authority has applied some of the bidders' suggested innovations to subsequent analysis of construction costs.
- Overall system costs also have been refined based on a wide range of information from the industry including risk integrated pricing techniques: CP 1 and CP 2-3 resulted in a better understanding of the level of competitive pricing. Also, the Authority refined the schedules and the way construction can be operationalized. These ongoing project experiences provided valuable sources of information to refine and drive down costs for the rest of the system.

Operating Estimates

The Authority is planning to initiate high-speed rail operations upon completion of the Silicon Valley to Central Valley segment. Within the 2016 Business Plan is the Authority's business strategy to move to operations as quickly as possible; the 2016 Business Plan also includes information that supports revenue and cost forecasts. Should there be a scenario in which the Silicon Valley to Central Valley system is significantly delayed, the Authority has developed an option to introduce interim service to the CVP. The aforementioned *First Construction Package Utilization Plan and Concept of Operations* describes how a non-high-speed operating service could be implemented.

Ridership and revenue forecasts, and operating cost forecasts have been provided for the Silicon Valley to Central Valley line for context and in order to demonstrate how the Authority intends to put the CVP into operation. This strategy is further elaborated upon in the 2016 Business Plan.

Updated 2016 Revenue Forecast Methodology

Ridership and revenue forecasts in the 2016 Plan reflect an enhanced travel demand model and changes to some key assumptions. The differences between the forecasts presented in the 2014 Business Plan and the forecasts presented in the 2016 Plan include:

- The 2016 Plan assumes a Phase 1 system that offers a one-seat ride extending to Anaheim; ridership and revenue forecasts in the 2014 Business Plan assumed a Phase 1 southern terminal in Los Angeles.
- New forecasts reflect an enhanced travel demand model that incorporates the latest available input data, new variables that better reflect travel behavior, and adjustments to the transit access network and station locations.

The above changes and model enhancements result in a Phase 1 ridership increase of approximately 25%, depending on the forecast year.

The ridership risk analysis considers new risk variables and was conducted separately for each model analysis year and system implementation assumption for Phase 1.

At the same time, many elements of the 2016 ridership forecasts remain consistent with the 2014 Business Plan:

- High and low ridership forecasts were developed through a rigorous risk analysis that provided a forecast range and associated probabilities for each business plan scenario through Monte Carlo simulations. The risk analysis model includes a range of assumptions relating to various risk factors having the greatest combination of uncertainty and impact on the results.
- The ridership forecasts employ the same ramp-up methodology as the 2014 Business Plan, which assumes 40% ramp-up in year one, 55% ramp-up in year two, 70% ramp-up in year three, 85% ramp-up in year four and 100% ramp-up in year five. Separate ramp-up calculations are applied to each phase based on its assumed opening date. For more information on the ridership and revenue forecasts, please refer to the 2016 Business Plan Technical Supporting Document: Ridership and Revenue Forecasting.

- Farebox revenue forecasts in the 2016 Plan reflect the same enhanced model and revised assumptions used to estimate ridership. These changes have a similarly positive effect on estimated revenue for the Phase 1 system. As a result of the changes above, the Phase 1 revenue forecast increases by approximately 35% over the 2014 Business Plan revenue forecast, depending on the forecast year.
- Revenue forecasts in the 2016 Plan incorporate the same ramp-up methodology as ridership and as the 2014 Business Plan. The cash flow analysis assumes 1% additional ancillary revenue. The same risk analysis employed to provide a forecast range for ridership and associated probabilities also applies to revenue projections.

In addition, the 2016 Plan provides updates to the methodology as set forth below.

Updated 2016 Operations and Maintenance Forecast Methodology

The 2014 Business Plan operations and maintenance cost model was developed using guidance from the U.S. Department of Transportation Inspector General, and feedback from international high-speed rail subject matter experts at the International Union of Railways (UIC).

The 2016 Plan operations and maintenance cost estimates were derived by building on the 2014 cost model forecasts with minor adjustments based on new information and refined assumptions. All model assumption changes were reviewed and verified by Network Rail Consulting, the operator and maintainer of both the high-speed and conventional rail network infrastructure in the United Kingdom, to ensure international best practices are maintained in the forecasts.

The model adjustments had a minimal overall effect on operations and maintenance cost projections, but phasing changes have a more significant impact on operations and maintenance cost forecasts. The 2040 out-year forecasts in this 2016 Plan are within ~5 percent of the 2014 Business Plan projections, as the changes have minimal net effect on operations and maintenance costs for the Phase 1 system.

As in 2014, the Authority conducted a Monte Carlo simulation to understand the risks and uncertainties associated with the forecasts and created a forecast range with associated probabilities of occurrence. The high and low operations and maintenance cost forecasts in the exhibits below reflect the results of these Monte Carlo simulations.

Throughout the high-speed rail system there will be a variety of facilities built to support high-speed rail service. These include heavy and light maintenance facilities to service trains, stations, maintenance of infrastructure facilities, a dispatching center and headquarters. The various operational and maintenance functions will create permanent jobs, located at various points along the corridor to meet the system needs. The Authority anticipates the following types of positions for each facility type:

- Stations – station managers, ticket agents, passenger assistance representatives, facility maintenance managers, station cleaners, train cleaning staff, police and security.
- Maintenance of Infrastructure Facilities (throughout the state) – inspectors, heavy equipment operators, laborers, mechanics, truck drivers, welders, track engineers, track maintainers, signal engineers, signal maintainers, communications engineers, systems engineers, wire-men, electricians and supervisory and support staff.

- Heavy Maintenance Facility (in the Central Valley) – mechanical technicians, electrical technicians, supervisors, laborers, cleaners and store-house employees.
- Light Maintenance Facilities (Northern and Southern California) – similar personnel positions to the heavy-maintenance facility but a smaller workforce.
- Operations Control Center (in the Central Valley) – operations directors, managers, dispatchers, supervisory and support staff. Train crew assignments will be dictated from this location and some train crews will report to this location. Train crews (engineers, conductors, assistant conductors and on-board attendants) will also report in other locations where trains start up service.
- Headquarters (Central Valley) – The railroad executive and corporate organizations will be housed at this location. The executive and corporate workforce will include operations, safety, legal, finance, human resources, contracts, planning, systems and information technology and public affairs and marketing professionals.
- Updated 2016 Lifecycle Cost Estimates

Lifecycle costs forecast the capital rehabilitation and replacement costs for the infrastructure and assets of the high-speed rail system. Differences in lifecycle costs between the 2014 Business Plan and the 2016 Plan reflect changes in capital cost estimates and minor adjustments to some asset lifespans. All model assumption changes were reviewed and verified by Network Rail, the operator and maintainer of both the high-speed and conventional rail network infrastructure in the United Kingdom, to ensure international best practices are maintained in the forecasts.

Similar to the operations and maintenance and revenue estimates, a Monte Carlo analysis was developed to evaluate a potential range of lifecycle cost forecasts shown in the exhibits below. The Monte Carlo methodology employed in 2014 applies also to the 2016 analysis. For more information on the lifecycle cost model, please refer to the 2016 Business Plan Technical Supporting Document: 50-Year Lifecycle Capital Cost Model Documentation.

2016 Updated Operating Forecast

As described above, the revenue and cost projections for the 2016 Plan are updated as a result of enhanced models, and have undergone risk analyses to confirm their reliability.

A breakeven analysis has been conducted on the Valley to Valley line, which includes the CVP, and on the Phase 1 system. The breakeven analysis performed considers farebox revenue only.

The Monte Carlo risk analysis performed on the system breakeven provides state-of-the-art statistical support for the projections that the system will perform at or above its breakeven point and will not require an operating subsidy. The analysis results in a 32% probability that the Valley to Valley line will reach its breakeven point in the opening year but this probability increases quickly as the system ramps up. It is anticipated that the system begins to cover annual operating costs in Year 2 and recoups the first-year loss by Year 3 (in the Medium case).

The quantitative risk analysis also results in a 69% probability that the Valley to Valley line will reach its breakeven point over the initial ramp-up period and a greater than 99% probability that the Phase 1 project will do the same over the analysis period through 2060.

To mitigate the risk that the breakeven point may not be achieved as soon as projected, the Authority has several contracting strategies that will place on other parties the contractual responsibility to cover any early year losses based on revenues exceeding costs in later years. This approach is intended to ensure that there will not be a time that the Authority will have to provide a subsidy to an operator.

Exhibits D-1, D-2 and D-3 below show net cash flow from operations for the first five years of system operation during which time the Valley to Valley line ramps up to full operations. The high, medium and low scenarios illustrate that the system can be operationally self-sustaining and not require an operating subsidy during either the five-year ramp-up period, or as it reaches maturity. The high scenario is projected to have positive cash flow in the first year of operations. The low and medium scenarios are projected to reach an annual positive cash flow during year two and three, respectively.

Exhibit D-1. Silicon Valley to Central Valley Line Net Cash Flow from Operations - High Scenario

Summary of Net Cash Flow from First 5 Years of Operations: San Jose-North of Bakersfield (Silicon Valley to Central Valley Line) Through Phase 1, High Scenario (In Millions of YOE$)					
	2025	2026	2027	2028	2029
Revenues (Including Farebox, Ancillary and Bus)	$360	$510	$668	$836	$2,222
Less: O&M	($331)	($377)	($424)	($473)	($1,196)
Net Cash Flow from Operations	**$28**	**$133**	**$245**	**$363**	**$1,026**

Source: California High-Speed Rail Program 2016 Business Plan, pg. 95

Exhibit D-2. Silicon Valley to Central Valley Line Net Cash Flow from Operations - Medium Scenario

Summary of Net Cash Flow from First 5 Years of Operations: San Jose-North of Bakersfield (Silicon Valley to Central Valley Line) Through Phase 1, Medium Scenario (In Millions of YOE$)					
	2025	2026	2027	2028	2029
Revenues (Including Farebox, Ancillary and Bus)	$254	$ 361	$473	$592	$1,671
Less: O&M	($303)	($344)	($387)	($432)	($1,093)
Net Cash Flow from Operations	**$(48)**	**$16**	**$86**	**$159**	**$578**

Source: California High-Speed Rail Program 2016 Business Plan, pg. 95

Exhibit D-3. Silicon Valley to Central Valley Line Net Cash Flow from Operations - Low Scenario

Summary of Net Cash Flow from First 5 Years of Operations: San Jose-North of Bakersfield (Silicon Valley to Central Valley Line) Through Phase 1, Low Scenario (In Millions of YOE$)					
	2025	2026	2027	2028	2029
Revenues (Including Farebox, Ancillary and Bus)	$199	$281	$369	$462	$1,307
Less: O&M	($290)	($330)	($370)	($414)	($1,047)
Net Cash Flow from Operations	**($91)**	**($48)**	**($ 1)**	**$48**	**$259**

Source: California High-Speed Rail Program 2016 Business Plan, pg. 95

Full detailed cash flows for each scenario are located at:
http://hsr.ca.gov/docs/about/business_plans/2016_Business_Plan_High_Medium_Low_Cash_Flows.pdf

E. Interim Use Reserves

The Finance Plan(s) shall address the financial soundness of the reserve scenario in the event the state of California pursues early use of the new infrastructure.

The grant agreements contain provisions for an Interim Use Project Reserve (Task 9). This allocation does not alter or affect the overall federal share associated with funding this project. The management and use of the reserve funding is described in the draft project reserve planning documents previously submitted to the FRA. Use of reserve funds is dependent upon FRA approval. The reserve was established to cover costs that would be incurred as part of early use that would not be part of a high-speed rail federally funded CVP. These elements could include track connections and associated communications and signaling, interim stations, operations control, and maintenance.

The Interim Use Project Reserve was originally 100% federally funded with no state match attached to this allocation. However, the reserve fund allocation underwent a restructuring in the ARRA Amendment 6 process and included permission for the Authority to use $53.86 million of reserve funds to purchase radio spectrum – a communications system for the entire system. The amendment process also included a contribution of $46.3 million in state funds to the Interim Use Project Reserve allocation. Currently, the Interim Use Project Reserve balance is $154 million ($108M and $46M in FY 10 and state funds, respectively).

The Interim Use Project Reserve task is broken into two subtasks: Task 9.1 Project Reserves and Task 9.2 Interim Use Reserve. Task 9.1 is reserved for budgeted, but unallocated, costs over and above unallocated contingency. Task 9.2 is for infrastructure elements that may be necessary to initiate independent utility on the CVP (generally between Madera and northern Kern County).

Interim Use Operations

FRA anticipates that Interim Use Project Reserve funds could be needed and used to establish early intercity rail operations on the CVP if it appears high-speed rail revenue service, on a longer operational segment that includes the CVP, will be significantly delayed. Expenditure of funds in this allocation is subject to FRA approval and may only be used for the construction infrastructure necessary to initiate early operations on the CVP funded under the grant. The amount established in the Interim Use Reserve Fund is an estimate of the maximum funds required to implement early service operations including track, signal and communications elements, stations, operations control, and a limited maintenance facility. If such reallocation occurs, the Authority will be obligated to provide the matching contribution for the reallocated Interim Reserve Fund.

Prior to the release of Requests for Proposals or bids for track, signals, or other system elements (i.e., beyond civil and structural infrastructure), if FRA determines that there will be a significant delay in completing the investments needed to begin initial high speed rail revenue service on an initial operating segment that includes the CVP, FRA may direct the Authority to use the Interim Use Reserve Funds to build any required capital investments necessary for an interim service alternative that will ensure operations over the CVP for the minimum term of 20 years. Upon such an FRA determination and prior to letting any contracts necessary to implement the FRA-approved interim service alternative, the Authority shall ensure operating and financial commitments are secured by the appropriate governmental agencies and/or private entities that would construct and operate such early service alternatives.

In the *First Construction Package Utilization Plan and Concept of Operations* (updated in October 2016) describes the preferred interim use alternative, known as Alternative One – Electrified Passenger Service.

Alternative One – Electrified Passenger Service

This alternative would provide an electrified service that utilizes the high-speed rail system/tracks and rolling stock. Passengers would access the services at an intermodal station at Madera Acres or via intercity buses at a temporary station north of Bakersfield. Six round trips a day (12 trains) would be timed to connect with the existing San Joaquin service at the new Madera Acres transfer station where passengers would be able to use their Amtrak tickets to board high-speed trains.

Four train sets would be required for this alternative and would be provided via the Authority's forthcoming equipment procurement. A small maintenance facility, for both infrastructure and rolling stock, would be provided. The rolling stock facility would include two 1,450-foot storage tracks with inspection pits, access for toilet servicing, and cleaning and pantograph inspections. Additionally, a warehouse for storing rolling stock material and spare parts would also be required. The maintenance of infrastructure forces would require a facility that encompasses six yard tracks and one siding track (1,600'), occupying approximately 28 acres including:

- Approximately 8,150 feet of yard track capacity
- Shop facilities for the following activities: MOI inventory, infrastructure and equipment
- Maintenance/repair stockpile areas for ballast and other bulk materials
- Secured stockpile areas for non-bulk materials
- Rail side unloading dock and CWR train storage (1,600')
- Rail-borne equipment and locomotive storage tracks
- Dispatching facility will be needed

The trainset procurement and maintenance of infrastructure procurement are anticipated for release in late 2017, and may be awarded by early 2018. Consequently, all requirements needed for Alternative 1, including trainsets, trainset maintenance, trainset maintenance facilities and infrastructure maintenance with corresponding infrastructure maintenance facilities and dispatch requirements, will be incorporated in those procurement documents and will be provided by the two contractors. Alternative 1 would be administered at the direction of CalSTA. The estimated Alternative 1 start date of service is by 2023. The estimated construction cost for Alternative 1 is $58.4 million.

All other alternatives previously considered by the Authority are no longer under consideration.

Appendix 1 – Proposition 1A

"Safe, Reliable High-Speed Passenger Train Bond Act for the 21st Century"

(AB 3034 – Chapter 267 – Statutes of 2008)

http://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=200720080AB3034

Appendix 2 – California State Budget Process

State Budget Process Overview

The Governor's budget is the result of a process that begins more than one year before the budget becomes law. Capital Outlay Budget Change Proposals (COBCPs) are documents that propose to modify or change funding levels, existing level of service, propose new programs or delete existing programs. These documents are prepared by agencies/departments and submitted to the DOF. This process starts in July with Budget Concept Statements, which are internal documents utilized to gather data, document research and present requests in a manner consistent with the COBCP format. The concepts are then evaluated by departmental management and either approved or denied for submission to DOF for consideration. The process concludes in September when all requests are submitted to DOF for review and determination of requests. Approved requests are incorporated into the Governor's budget.

The California Constitution requires the Governor to submit a budget to the Legislature by January 10 which includes an explanatory message and provides a budget for the ensuing year with itemized expenditures and revenues. By constitutional requirement, the Governor's budget must be accompanied by a Budget Bill itemizing recommended expenditures which shall be introduced in each house of the Legislature. The Constitution also requires that the Legislature pass the bill by June 15. The Senate Budget and Fiscal Review Committee and the Assembly Budget Committee are the two committees that hear the Budget Bills. These hearings generally begin in late February soon after the Legislative Analyst issues the Analysis of the Budget Bill.

The DOF proposes adjustments to the Governor's budget through Finance Letters in the spring. By statute, the DOF is required to give the Legislature all proposed adjustments, other than Capital Outlay and May Revision, to the Governor's budget by April 1. Capital Outlay adjustments are due by May 1. The traditional May Revision adjustments are due by May 14, and consist of an update of general fund revenues and changes in expenditures for school funding requirements pursuant to Proposition 98, caseload, enrollment, or population. The Legislature typically waits for the May Revision update before final budget decisions are made on major programs such as education, corrections, and health and human services.

When the Budget Bill receives a two-thirds vote of each house, it is passed on to the Governor. The Constitution allows the Governor to reduce or eliminate an item of appropriation.

There are generally budget changes proposed by the Governor or the Legislature which necessitate changes to existing law in order to implement the budget changes. If this is the case, separate bills are introduced to implement the change. These budget implementation bills are called trailer bills and are heard concurrently with the Budget Bill. By law, all proposed statutory changes necessary to implement the Governor's budget are due to the Legislature by February 1.

The Budget Act is the primary source for appropriations. Continuous statutory appropriations and special legislation also provide expenditure authority.

Departments have the primary responsibility to operate within budgeted levels and to comply with any restrictions or limitations enacted by the Legislature. Further, the general expectation is that State agencies comply with the legislative intent.

Process for Budget Augmentation

Although the general expectation is to conform to the enacted budget, the Legislature has recognized a need to establish some flexibility to adjust budgets. For example, the statutes provide a continuous appropriation for allocations by the Director of Finance to meet expenditures resulting from natural disasters for any emergency proclaimed by the Governor. The Legislature has also provided provisions in the Budget Act to allow for budget adjustments. Most of this authority requires Director of Finance approval; many require a formal notice to the Legislature and a waiting period to provide the opportunity for legislative review and response before final approval. Budget Act provisions to allow adjustments include authorizations for:

- Changes to federal funding levels
- Deficiencies
- Changes to reimbursements
- Intra-item transfers

The DOF approves budget changes using Budget Revisions, Executive Orders and Letters. These changes are transmitted to the SCO, which maintains the statewide appropriation control accounts.

The Governor has certain powers to adjust expenditures. Although these powers do not permit for adjustment of appropriations, the expenditure plan may be changed. For example, past Governors have issued Executive Orders to implement hiring and equipment purchase freezes and delayed capital expenditures. Under emergency conditions, the Governor is also authorized to direct State resources to meet emergency needs.

Listed below are mechanisms, including descriptions and additional provisions, departments can utilize to augment their appropriations.

Section 26.00 – Intra-Schedule Transfers

Section 26.00 authorizes the transfer of funds from one line to another within the schedule of an appropriation. The amount of the transfer is limited in provisions (c) 1-4. However, provision (e) provides that transfers exceeding these limits may be authorized, but not sooner than 30 days after notification in writing of the necessity to exceed the limitations is provided to the Legislature. The following also applies to Section 26.00 adjustments:

- Intra-schedule transfers for capital outlay purposes are prohibited, regardless of whether budgeted in a capital outlay or local assistance appropriation.
- Intra-schedule transfers are allowed for support and local assistance type purposes.
- Transfers may not establish or eliminate a program, project, or function.
- Any transfer in excess of $200,000 requires advance reporting to the Legislature.

DOF is required to report all budget adjustments authorized pursuant to Section 26.00 annually at the end of the fiscal year to the Legislature.

Section 28.00 – Augmentation for Receipt of Non-State Funds

Section 28.00 authorizes DOF to approve augmentations for the expenditure of unanticipated funds received from the federal or local governments or any other non-state entity. For purposes of this

Section, unanticipated means those instances when receipt of the funds could not reasonably have been foreseen at the time of the development of the Governor's budget or the submission of Spring Finance Letters for inclusion in the budget for the ensuing fiscal year. DOF may also reduce any program, project, or function if funds will not be received as anticipated.

Section 28.00 does not provide an appropriation. Augmentations approved pursuant to Section 28.00 involve adjustments of moneys which already have been appropriated.

To receive consideration for an augmentation, departments must either notify DOF within 45 days of receiving official notification of additional funds or provide written explanation to DOF why the 45-day notification requirement could not be met. In either case, the department must provide DOF a copy of the official notice of fund availability.

Regardless of the source of the additional funding, any augmentation that exceeds either $400,000 or 10 percent of the amount available for expenditure in the affected program, project, or function must be reported to the Legislature. The notification to the Legislature must include the date the department received official notification of additional funds and a copy of the department's written explanation of delayed notification to DOF if the 45-day requirement could not be met.

Section 28.00 augmentations must also meet the following four criteria, and this information must be included in the notification to the Legislature:

- The funds will be expended for a purpose that is consistent with state law.
- The funds are made available to the state under conditions permitting their use only for a specified purpose, and the additional expenditure proposed under this section would apply to that specified funding purpose.
- Acceptance of the funds does not impose any requirement to commit or expend new state funds.
- The need exists to expend the additional funding during the current fiscal year.

Section 28.50 – Augmentation for the Receipt of State Funds

Section 28.50 authorizes DOF to approve a state agency's expenditure of additional reimbursements received from another state agency. DOF may also reduce any reimbursement amount and the related expenditure authority if anticipated reimbursements will not be received.

DOF approval of the expenditure of such reimbursements that exceeds $200,000 must be reported to the Legislature.

If the funding for the agency providing the reimbursements has been approved by the Legislature or reported to the Legislature in accordance with other Section requirements, the DOF approval of the receipt and expenditure of the reimbursements will be considered a technical budget adjustment. Reporting will not be required pursuant to Section 1.50.

However, any new activity, program, or issues considered "sensitive" (as specified in the General Reporting guidelines) that will be funded by additional reimbursements should be reported. The use of Section 1.50 to make technical adjustments will not be used in these instances.

Appendix 3 – Extract of SB 862 Cap and Trade Program Language

SB 862 added Health and Safety Code Section 39719 and 39719.1 to state law that increase funding of the High-Speed Rail Program. Key provisions appear below.

Section 39719 is Added to the Health and Safety Code, to Read:

- 39719. (a) The Legislature shall appropriate the annual proceeds of the fund for the purpose of reducing greenhouse gas emissions in this state in accordance with the requirements of Section 39712.
- (b) To carry out a portion of the requirements of subdivision (a), annual proceeds are continuously appropriated for the following:
  - Beginning in the 2015–16 fiscal year, and notwithstanding Section 13340 of the Government Code, 35 percent of annual proceeds are continuously appropriated, without regard to fiscal years, for transit, affordable housing, and sustainable communities programs as following:

  (A) Ten percent of the annual proceeds of the fund is hereby continuously appropriated to the Transportation Agency for the Transit and Intercity Rail Capital Program created by Part 2 (commencing with Section 75220) of Division 44 of the Public Resources Code.

  (B) Five percent of the annual proceeds of the fund is hereby continuously appropriated to the Low Carbon Transit Operations Program created by Part 3 (commencing with Section 75230) of Division 44 of the Public Resources Code. Funds shall be allocated by the Controller, according to requirements of the program, and pursuant to the distribution formula in subdivision (b) or (c) of Section 99312 of, and Sections 99313 and 99314 of, the Public Utilities Code.

  (C) Twenty percent of the annual proceeds of the fund is hereby continuously appropriated to the Strategic Growth Council for the Affordable Housing and Sustainable Communities Program created by Part 1 (commencing with Section 75200) of Division 44 of the Public Resources Code. Of the amount appropriated in this subparagraph, no less than 10 percent of the annual proceeds, shall be expended for affordable housing, consistent with the provisions of that program.

  - Beginning in the 2015–16 fiscal year, notwithstanding Section 13340 of the Government Code, 25 percent of the annual proceeds of the fund is hereby continuously appropriated to the High-Speed Rail Authority for the following components of the initial operating segment and Phase I Blended System as described in the 2012 business plan adopted pursuant to Section 185033 of the Public Utilities Code:

  (A) Acquisition and construction costs of the project.

  (B) Environmental review and design costs of the project.

  (C) Other capital costs of the project.

  (D) Repayment of any loans made to the authority to fund the project.
- (c) In determining the amount of annual proceeds of the fund for purposes of the calculation in subdivision (b), the funds subject to Section 39719.1 shall not be included.

SEC. 8. Section 39719.1 is Added to the Health and Safety Code, to Read:

- 39719.1. (a) Of the amount loaned from the fund to the General Fund pursuant to Item 3900-011-3228 of Section 2.00 of the Budget Act of 2013, four hundred million dollars ($400,000,000) shall be available to the High-Speed Rail Authority pursuant to subdivision (b).
- (b) The portion of the loan from the fund to the General Fund described in subdivision (a) shall be repaid to the fund as necessary based on the financial needs of the high-speed rail project. Beginning in the 2015–16 fiscal year, and in order to carry out the goals of the fund in accordance with the requirements of Section 39712, the amounts of all the loan repayments, notwithstanding Section 13340 of the Government Code, are continuously appropriated from the fund to the High-Speed Rail Authority for the following components of the initial operating segment and Phase I Blended System as described in the 2012 business plan adopted pursuant to Section 185033 of the Public Utilities Code:
    - Acquisition and construction costs of the project.
    - Environmental review and design costs of the project.
    - Other capital costs of the project
    - Repayment of any loans made to the authority to fund the project.

Appendix 4 – Summary of Funding Sources, Appropriations, Risks, and Risk Mitigations

American Recovery and Reinvestment Act (ARRA)

Appropriations

ARRA funding has been provided through Federal Grant FR-HSR-0009-10-01-00 and is being used for pre-construction and construction costs on the Central Valley Project. Funds were appropriated through SB1029, passed by the California State Legislature and signed by the Governor, authorizing expenditure of federal grant funding.

Risks	Risk Mitigations
The ARRA funding appropriation sunsets in September 2017 – funds not fully expended are subject to being lost.	The FRA and Authority have agreed to a tapered match funding regime whereby ARRA payments may temporarily exceed Grantee's contributory matching funding percentage. This creates the opportunity for substantial cost saving as well as accelerating the use of ARRA funds subject to the 2017 sunset. Additionally, the Authority provides a quarterly Funding Contribution Plan to FRA which details CVP expenditures through project completion.
Project delays may result in slower-than-anticipated expenditure of ARRA grant funding	The Authority has implemented a robust risk management framework that is designed to identify and manage risk through the construction process, particularly risks that could lead to Project delays. The Authority is supported by experienced consultant teams. The Authority's Rail Development Partner (RDP) will support the Authority organizationally including commercial structuring, procurement, contract negotiation, oversight and management, and design and engineering. Most importantly, the RDP has contracted under a performance regime designed to enhance on-time and on-budget delivery of the Program. The Authority continues to make significant progress on its current Contract Packages. See the Introduction section of this report for a full description of Project Status. In the most recent Grant Amendment 6 the Period of Performance has been extended from December 31, 2017 to December 31, 2022. This means that the Authority has an extra 5 years in which to provide matching funds.
Change orders or other unforeseen events may result in higher than anticipated total capital costs	The Authority has initiated a change committee that FRA participates in whose purpose is to provide oversight to mitigate cost overruns.
Prop 1A matching contributions become unavailable	If Prop 1A funding becomes unavailable as contributory matching funds for the ARRA funding the Authority is able to utilize appropriated Cap and Trade funds in its place - see *Cap and Trade Revenues* in Section A of this CVPFP.

FY 10 Funding

Appropriations

Funding has been provided through Federal Grant FR-HSR-01118-12-01-00 and is being used for construction activities on the Central Valley Project. Funds also were appropriated under SB 1029, state budget legislation passed by the California State Legislature and signed by the Governor, authorizing expenditure of federal grant funding in the amount of $928.6 million for construction of the CVP.

Risks	Risk Mitigations
Other revenues expire or become unavailable, rendering the remaining FY 10 funding insufficient	As described in the funding sections, herein, the Authority has agreed with FRA to accelerate the use of ARRA funds under the tapered match plan to enable sun-setting funds to be expended first. The state has secured a back-up source of state funding in the form of Cap and Trade Revenues should Prop 1A become unavailable for any reason.

Proposition 1A

Appropriations

Proposition 1A (or Prop 1A) was passed by voters in 2008, creating a $9 billion dedicated source of funding for California High-Speed Rail. The California Legislature Appropriated Prop 1A bond proceeds in the amounts of $2.6 billion for construction and $377 million for Project Development costs.

Risks	Risk Mitigations
Legal action further delays availability of funds	Authority continues to successfully challenge legal action. Cap and Trade funding may be used as a substitution for Prop 1A funds.
Cap and Trade funds are allocated to other parts of the system, providing no back-stop to Prop 1A funds	Cap and Trade funds are currently being used for CVP construction expenditures. The Authority will assess its funding requirements on a periodic basis and assign funds to projects as it deems necessary.
Required federal matching funds expire	As described in the ARRA funding section, the Authority has agreed with FRA to accelerate the use of ARRA funds under the tapered match plan to enable sun-setting funds to be expended first. Additionally, the Federal government has extended the period of performance which gives the Authority an additional 5 years to provide matching funds.

Cap and Trade

Appropriations

The Cap and Trade program was established through AB 32. Appropriation of Cap and Trade Revenues was approved in the FY 2014-15 budget cycle, through AB 862, of which 25 percent is continuously appropriated to the Authority.

Risks	Risk Mitigations
Cap and Trade Auction proceeds may be lower than what the Authority commits to project expenditures	Authority continues to monitor Cap and Trade auction results and actively manages its commitments of Cap and Trade funds based on conservative estimates. Under the provisions of SB 862 California High-Speed Rail will receive 25 percent of Cap and Trade revenues on an on-going basis. • $600 million in the Governor's budget for FY15/16 based on the continuous appropriation • $500 million in the Governor's budget for FY16/17 based on the continuous appropriation plus $100 million of a $400 million one-time appropriation, for a total of $600 million in FY16/17 See LAO Report for recent Cap and Trade results: *Cap-and-Trade Revenue: Likely Much higher Than Governor's Budget Assumes:* lao.ca.gov/LAOEconTax/Article/Detail/64
Authority commits C&T funds to other parts of the system making them unavailable to back-stop Prop 1A	Cap and Trade funds are currently being used for CVP construction expenditures. The Authority will assess its funding requirements on a periodic basis and assign funds to projects as it deems necessary.

Local Funding

Appropriations

Local match of $52.1 million has been provided for specific system-wide pre-construction costs.

Risks	Risk Mitigations
Funding is not provided by local entities	No local funding will be used for construction of the CVP. For use in pre-construction expenditures the Authority is actively engaged in negotiating funding agreements with Southern California agencies and FRA.

Appendix 5 – Top Risks

California High-Speed Rail Authority	Date	Rating	
Risk Mitigation Actions	July 10, 2016	Current	Prior
		5	5

Risk ID	Description
1004	Delays to acquisition of ROW parcels for CP 1 contract as committed in the DB contract ROW Acquisition Plans may impact the construction schedule.
Discipline	
ROW	

Risk Background Information: The Authority owns the risk of delivering ROW to DB Contractor on time. If the ROW acquisition has not progressed as committed in the ROW Acquisition Plan for Design Build Contracts, Authority may incur delay claims. Authority has partnered with the contractor to identify early start locations and focus delivery of those parcels. Progress is being made to achieve this commitment and should help mitigate the potential delay claims.

Risk Mitigation Actions

#	Action Description	Deliverable	Due Date
1	Authority to take action to resolve bottlenecks and staffing issues. Update: Continuous monitoring ongoing to resolve bottlenecks.	Hiring of staff	Ongoing
2	Authority has augmented staffing, reallocated administrative duties to free up technical resources and worked with partners to establish priorities.		Complete
3	Partner with the contractor to potentially re-sequence or accelerate work as necessary. Update: Identified locations within CP 2-3 contract where construction Is being accelerated to reduce delays.		In Progress
4	Working with Department of Finance (DOF) and DGS to implement administrative delegations to streamline the process.		In Progress
5			

Other Potential Mitigation Actions

The ROW division is currently clearing additional widths along corridors to reduce secondary ROW acquisitions from same owners resulting from design changes / refinements.

History Log

California High-Speed Rail Authority	Date	Rating	
Risk Mitigation Actions	July 10, 2016	Current	Prior
		5	5

Risk ID	Description
1003	Delays in obtaining all agreements with railroads for Central Valley due to extended negotiations periods.
Discipline	
Political Government External	

Risk Background Information: Many interface agreements and integration risks associated with UPRR and BNSF and other railroad agencies including risks with design, construction methodologies, operational issues related to the joint use of ROW, stations and ancillary facilities, integration with rail infrastructure and operating companies. Authority is responsible for providing the Contractors with executed versions of any Railroad Agreements that were not executed and provided to the Contractor prior to the Proposal Deadline.

Risk Mitigation Actions

#	Action Description	Deliverable	Due Date
1	With BNSF, identify critical ROW areas and Establish the agreements 1) Purchase & Sale 2) Grade Separation, 3) Relocation & Construction including I&I provisions.	Agreements	11.29.2016 templates for 1, 2 and 3 developed
2	With UPRR, identify critical ROW areas and establish the agreements 1) Engineering, Construction & Maintenance, 2) Insurance & Indemnification, 3) Purchase & Sale, 4) Grade Separation.	Agreements	Completed 1, 2, 3 in signed, template developed for 4.
3	Sign remaining agreements with railroad when DB contractors complete 100% design of railroad crossings at various locations.	Agreements / 100% Design	Ongoing
4			
5			

Other Potential Mitigation Actions

History Log

Templates for all agreements have been developed. BNSF has requested to sign the agreements at the 100% design level of BNSF realignments and intrusion protection requirements.

California High-Speed Rail Authority	Date	Rating	
Risk Mitigation Actions	July 10, 2016	Current	Prior
		5	5

Risk ID	Description
1022	Increase in capital costs because of potential for underestimated Environmental Mitigation costs in the absence of a program-wide policy on managing mitigation.
Discipline	
Environmental	

Risk Background Information: Lack of a program-wide policy for managing and funding mitigation measures including wetlands, soil remediation, cultural resources and other mitigation measures currently negotiated either with resource agencies or local communities. Three percent of the construction cost is now used as an assumption by the cost estimators for estimating mitigation costs.

Risk Mitigation Actions

#	Action Description	Deliverable	Due Date
1	Assess impact avoidance and minimization measures (IAMM), mitigation measures used in MF and FB EIR/EIS and experience with CP 1 to revise and clarify IAMMs and mitigation measures.		9.30.2016 Ongoing; coordinating with construction contract managers
2	Revise estimate at the program level and include in program estimates and funding scenarios, a line item for environmental mitigation and track usage.		Ongoing
3	Update WBS dictionary and ensure WBS dictionary environmental scope excludes planning betterments.	WBS Dictionary	In Progress
4	Develop a policy for natural resource compensatory mitigation.		In Progress
5			

Other Potential Mitigation Actions

History Log

At the project/contract level, a line item is included in DB price proposal for environmental mitigation.

California High-Speed Rail Authority	Date	Rating	
Risk Mitigation Actions	July 10, 2016	Current	Prior
		2	5

Risk ID	Description
1029	Failure of station-area development and value capture to continue with the ancillary funding (approx. 30%).
Discipline	
Financial	

Risk Background Information: Failure to receive local funding could impact the development of stations and related local networks causing a decrease in ridership. The statewide end of redevelopment authority has limited localities' ability to implement of value capture around stations. Station Cities that have not received station area planning funds will not have the benefit of added analysis of land use, development potential and connectivity - all elements that work toward improving ridership and revenue over base conditions.

Risk Mitigation Actions

#	Action Description	Deliverable	Due Date
1	Use Station Area Planning to promote local funding and joint development to enhance ridership/revenue.		7.1.2017 In Progress
2	Develop strategies for creating and capturing value from commercial and real estate development in areas around HSR stations and for the acquisition, management, and value capture for properties included in station footprint		7.1.2017 In Progress
3	Research legal remedies to enable more effective value capture by localities and/or HSR Program.		12.31.2016 In Progress
4			
5			

Other Potential Mitigation Actions

History Log

California High-Speed Rail Authority	Date	Rating	
Risk Mitigation Actions	March 10, 2016	Current	Prior
		5	5

Risk ID	Description
1032	Failure to obtain financing for the project, either public or private financing or both.
Discipline	
Financial	

Risk Background Information: The ability to finance the project is largely dependent upon the revenue source used for repayment. For project financing, this is normally net project revenue (revenue less operating costs) but can also include appropriated funding. Authority continues to evaluate the use of innovative delivery models that leverage private finance to deliver the project, has conducted informal market testing/sounding, has evaluated the use of a range of financing structures as an additional form of financing, and is considering ancillary sources of revenue to support project revenue. The Authority continues to work with stakeholders to gain support for the project.

Risk Mitigation Actions

#	Action Description	Deliverable	Due Date
1	The near-term funding risk is mitigated by the identification of all necessary sources for the CVP construction cost. The scope of first construction section will be managed to ensure that the CVP is completed within the current funding appropriation.		2.6.2014 Complete
2	Continue to reach out to the private sector to test appetite and refine procurement / commercial approach.	RFEI process	Complete - RFEI process concluded, inputs incorporated in 2016 Business plan
3	Continue to evaluate alternative delivery models and commercial mechanisms that leverage private investment.		Ongoing
4	Continue to work with federal partners, members of Congress and state legislators, the USDOT and other stakeholders to maintain support for funding and financing programs.		Ongoing
5			

Other Potential Mitigation Actions

History Log

The near-term funding risk is mitigated by the identification of all necessary sources for the $6 billion cost. The ultimate scope of first construction section will be managed to ensure that CVP of the IOS is completed within the current $6 billion appropriation.

California High-Speed Rail Authority	Date	Rating	
Risk Mitigation Actions	July 10, 2016	Current	Prior
		5	5

Risk ID	Description
1189	Increased capital costs due to railroads request for intrusion protection and/or detection measures to provide clearance from their ROW property line.
Discipline	
Engineering / Technical	

Risk Background Information: BNSF have requested intrusion protection measures of 102-ft from their property line rather than a 102-ft from their track center-line, as specified in CP 2-3 contract documents, in order to preserve ability to construct additional tracks within the full extent of their existing ROW. At the current 102-ft spacing requirement between HSR and BNSF, any additional BNSF track in that zone would require the consideration of intrusion protection measures. Depending on how the barrier design is finalized, there could be significant cost risk in construction of barriers. Authority is looking at the mixture between ditch/berm/barriers to ensure safety at appropriate cost levels.

Risk Mitigation Actions

#	Action Description	Deliverable	Due Date
1	Develop white paper for BNSF on strategies for use of earthen berms as intrusion protection.	White Paper	2.28.2016 Complete
2	Negotiate agreements with BNSF to address requirement of 250-ft clearance from ROW and associated intrusion protection/detection measures	Relocation and Construction agreement with BNSF	7.30.2016 In Progress
3	Intrusion Protection barrier - draft Intrusion Barrier Assessment report recommending design forces to FRA, Volpe, UPRR and BNSF, received comments and issue final report.	Design standards for barrier wall	7.30.2016 In Progress; Received comments from BNSF and FRA on draft intrusion barrier assessment report; Working on issuing final report.
4	Refine alternatives for intrusion barriers and incorporate recommendations on the design standards for barrier wall as part of the railroad agreements.		7.29.2016 In Progress
5			

Other Potential Mitigation Actions

Authority is working cooperatively with railroads to identify engineering solutions for mitigating the adjacency issues within CP1 and CP2-3.

History Log

Draft intrusion detection requirements have been negotiated, the requirements for CP 1, CP 2-3 and CP 4 contracts will be incorporated in CP 5 contract. Working with FRA on finalizing the recommended design standards for intrusion protection requirements.

California High-Speed Rail Authority	Date	Rating	
Risk Mitigation Actions	July 10, 2016	Current	Prior
		3	5

Risk ID	Description
1194	Delays in testing, commissioning and start of HSR operations due to unavailability of traction power substations to supply power for HSR operations.
Discipline	
Political Government External	

Risk Background Information: New utility construction or transmission network upgrade required for PG&E and SCE traction power substations. Risk is that there is a long-term planning, permitting and engineering process for each substation connections to the high-voltage grades (up to 6 years) which could impact testing, commissioning and start of operations.

Risk Mitigation Actions

#	Action Description	Deliverable	Due Date
1	Continue discussions with utility agencies (PG&E, SCE, and CPUC) to start planning for additional network upgrades.		Ongoing
2	Negotiate scope with utility agencies for next contract to perform impact analysis study, design, engineering, environmental and construction permits.	Reimbursable agreements	Ongoing
3	Complete environmental clearances. Authority to resolve disagreement between FRA and AG office on whether to clear sites 8-12.		10.30.17 Ongoing
4			
5			

Other Potential Mitigation Actions

History Log

Reassessed electric loads required for testing and commissioning and for initial operations (i.e. 2 trains per hour per direction). This load is 10% of theoretical max load (12 trains /hour/direction) with 9 trains as doable limits) initially provided to PG&E and SCE. PG&E is reassessing but first review is that minimal PG&E reinforcement required to support 2 trains /hour/direction.

California High-Speed Rail Authority	Date	Rating	
Risk Mitigation Actions	March 10, 2016	Current	Prior
		3	5

Risk ID	Description
1211	Authority's inability to manage funding streams due to lack of an in-house financial system within Authority that meets either existing or anticipated needs.
Discipline	
Program Management and Controls	

Risk Background Information: The lack of in-house financial system has and likely will continue to result in delays to: 1) negative impacts to funding opportunities (principally delays), 2) delays to the planning, designing, and building of the high-speed rail system, and 3) the addition of an unnecessary level of complexity when managing and overseeing the Regional Consultant contracts, the Federal ARRA grant, and Federal drawdowns for payments.

Risk Mitigation Actions

#	Action Description	Deliverable	Due Date
1	Confirm business specific financial management system needs to be addressed outside of FI$Cal. Define financial management system scope, integration points and overall system functionality.	Study	Ongoing
2	Acquire and implement in-house financial system sufficient to manage multiple streams of federal funding, state bond funding, and anticipated private sector/investor funding as well as provide accurate and timely reports, forecasts, and estimates.	Financial System	Ongoing
3			
4			
5			

Other Potential Mitigation Actions

History Log

8.24.2015 - FI$CAL implementation ongoing to eliminate overlapping of system functions. Risk rating reduced from Very High to High.

California High-Speed Rail Authority	Date	Rating	
Risk Mitigation Actions	July 10, 2016	Current	Prior
		4	5

Risk ID	Description
1230	Expiration of ARRA allocated funds for station area planning efforts due to IOS station cities not progressing Station-area planning thereby impacting station final design schedule and budget.
Discipline	
Financial	

Risk Background Information: Since the Authority created the Station Partnership Program in 2011, not all invited cities have completed funding agreements. Some of the invited localities have either not applied or suspended their applications. This will impact Station-Area Planning (SAP) including station community interface, station access/egress, joint development, and local value capture. ARRA grant funds may not be spent by 2017 and potentially expire unused. Without SAP multiple issues can arise during final station design that impact schedule and budget of both design and construction of the stations.

Risk Mitigation Actions

#	Action Description	Deliverable	Due Date
1	Expand SAP to additional cities and finalize FRA approval of reallocating reserved funds to Burbank and Millbrae.		7.1.2015 Complete
2	Develop process and decision calendar for determining if each invited city continue in SAP program or alternate method is needed for planning.		7.1.2015 Complete
3	Develop HSR program-led station development program to cover SAP scope if host locality is not responsive to SAP program invitation. Create city specific work plans for finalizing funding agreements or implementing HSR-led station development program.		12.31.2016 In Progress
4	Execute all station funding agreements.	Funding agreements with all stations	8.30.2016 In Progress; Agreements in place for all cities except one station city
5			

Other Potential Mitigation Actions

Analyzing likely expenditure by March 2017 for each executed station area planning contract. We will then determine, in conjunction with FRA, if we can move money from station area planning to construction so that SAP can be primarily state and local funded.

History Log

6.16.2015 – Risk rating reduced from Very High to High as station-area planning work is now progressing on all Valley to Valley stations.

California High-Speed Rail Authority	Date	Rating	
Risk Mitigation Actions	July 10, 2016	Current	Prior
		2	5

Risk ID	Description
1359	Increased cost of PG&E and AT&T work on the Construction Package 1 following reassignment of work from utility agencies to CP1 Design Build Contractor (TPZP) and increase in scope of work due to unidentified utilities.
Discipline	
Construction / Site	

Risk Background Information: The updated CP1 risk analysis performed indicates a negative trend with respect to three risks that we initially identified again, those being: right-of-way, utility relocations, and adjacent railroad requirements. The risk analysis indicates that we have the potential of exceeding the contingency envelope for CP1 if risk mitigation actions are not undertaken.

Risk Mitigation Actions

#	Action Description	Deliverable	Due Date
1	Considering alternate design concepts as well as value engineering solutions.		Ongoing
2	Estimate the extent and scope of utilities, especially underground utilities, and estimate the costs of relocation.	Revised estimate	Complete
3	Perform risk-informed quantitative contingency analysis to develop required contingency over revised estimate of PG&E and AT&T utility relocations.	Third party scope risk contingency analysis	Complete - Analysis performed and presented to F&A committee in May 2016
4	Recommend Authority Board to allocate additional contingencies to the CP1 capital cost estimate to account for the increase in third party work.		In Progress
5			

Other Potential Mitigation Actions

History Log

In February 2016, recommended to the Authority Board the need to increase contingencies on CP1 by about $150M

K0113

Barnes, Juliana (FRA)

From: Barnes, Juliana (FRA)
Sent: Wednesday, May 31, 2017 2:45 PM
To: Malone, Desiree@HSR
Cc: rlvaldez@transystems.com
Subject: FW: Feedback: Q4-16 Deliverables (Program Management Plan)
Attachments: Review Comment Matrix.docx; PMP 2016 Annual Update FINAL.pdf

Hi Desi,

As a follow up to our conversation on 5/25 on annual deliverables, FRA was to provide feedback on the 2016 PMP as a first step in shaping the upcoming 2017 PMP.

In review of the 2016 PMP, to ensure that we're tracking the 12 requirements as outlined in US code and required by FRA, would you be able to review the attached "Review Comment Matrix" provided by CHSRA on 3/20 and update it to reflect the 12 requirements and corresponding location in the PMP? This would greatly assist us in ensuring we're capturing all the information provided to provide accurate feedback as it pertains to those required topics.

Thank you,
Juliana

From: Malone, Desiree@HSR [mailto:Desiree.Malone@hsr.ca.gov]
Sent: Monday, March 20, 2017 2:25 PM
To: Barnes, Juliana (FRA) <juliana.barnes@dot.gov>
Cc: mlrule@transystems.com; Everett, Lynn (FRA) <lynn.everett@dot.gov>; Giovinazzi, Giles@DOT <Giles.Giovinazzi@dot.ca.gov>; Gilliland, Barbara@HSR <gilliland@pbworld.com>; rlzimmerer@transystems.com
Subject: RE: Feedback: Q4-16 Deliverables (Program Management Plan)

Hi Juliana,

Attached is a revised PMP, along with a matrix that reflects FRA's comments and the page number location for easy reference.

From: Barnes, Juliana (FRA) [mailto:juliana.barnes@dot.gov]
Sent: Wednesday, March 01, 2017 1:40 PM
To: Malone, Desiree@HSR
Cc: mlrule@transystems.com; Everett, Lynn (FRA); Giovinazzi, Giles@DOT; Gilliland, Barbara@HSR; rlzimmerer@transystems.com; Barnes, Juliana (FRA)
Subject: Feedback: Q4-16 Deliverables (Program Management Plan)

Hi Desi,

FRA acknowledges receipt of the Program Management Plan submitted to FRA December 29, 2016.

Please see the following feedback after initial review of the Program Management Plan (PMP0:

K0114

1. FRA appreciates the changes CHSRA made and additional information it added to this deliverable since last year's PMP.
    a. Several important topics were removed from this year's PMP when compared to past versions. *Please incorporate these topics back into your re-submitted version:*
        i. *Updated Conflict Resolution Procedures*
        ii. *Updated Contingency Management Plan*
        iii. *Current Insurance Program*
    b. In addition, please add a link in the PMP to the following documents referenced in the PMP:
        i. *CHSRA's Performance Expectation Sheets and Performance Regime Deliverables for its RDP*
        ii. *Section Financial Plans*
        iii. *Program-Wide Procurement Management Plan*
        iv. *Document Control Plan*
        v. *Interface Management Plans for CP 1, CP 2-3, CP 4*
2. In the past, FRA asked for an appendix that cross-references the FRA's requirements for a project management plan with the chapters/sections and subsections of the PMP. FRA has also asked that this document include any relevant chapters/sections of other documents the PMP references so that one can easily find the most important information.
    a. *Add an appendix document cross-referencing the FRA's requirements for a project management plan with the various chapters/sections and subsections of the PMP as well as with any relevant chapters/sections of key documents the PMP references.*
        i. *The twelve components required by federal law are those referenced in the Introduction (page 3) of the PMP you submitted.*
3. The PMP references a multitude of other documents; a few of which are not available or not finalized, including, but not limited to, the Project Environmental Document EIR/EIS Publication & Public Outreach Guidance.
    a. *Provide copies of, or provide access to, current versions of every document referenced in the PMP. Note that the Risk Management Plan is from the June 2013 and should be updated.*
4. Chapter/Section 12 (Construction Management) ends abruptly in the middle of the sentence; thus, it is incomplete.
    a. *Complete Chapter/Section 12.*
5. While the PMP provides organizational charts, they are incomplete in that there are no names of individuals or their associated contact information. In addition, in later chapters/sections of the PMP, roles/titles are used that do not directly correlate back to a role/title on the organizational chart. For example, in Chapter/Section 5 (Program & Project Management), the PMP refers to a program control manager, but there is no such role/title on any organizational chart.
    a. *Add names to the organizational charts as well as use consistent roles/titles throughout the document or add additional roles/titles on the organizational charts.*
6. The CHSRA Program Phase 1 Milestone Table is not current.
    a. *Provide an updated version of Phase 1 Milestone Table.*

Please note FRA is returning the deliverable after review and requests resubmission after addressing the above FRA comments for further development no later than March 17.

Regards,

Juliana Barnes, PMP
Project Manager
Office of Program Delivery (RPD-15)
Federal Railroad Administration
801 I St., Suite 466
Sacramento, CA 95814

K0115
Cell: 916-215-9115

From: Malone, Desiree@HSR [mailto:Desiree.Malone@hsr.ca.gov]
Sent: Thursday, December 29, 2016 2:10 PM
To: Barnes, Juliana (FRA) <juliana.barnes@dot.gov>
Cc: mlrule@transystems.com; Everett, Lynn (FRA) <lynn.everett@dot.gov>; Giovinazzi, Giles@DOT <Giles.Giovinazzi@dot.ca.gov>; Gilliland, Barbara@HSR <gilliland@pbworld.com>; Malone, Desiree@HSR <Desiree.Malone@hsr.ca.gov>
Subject: Q4-16 Deliverables - Email 2 of 3

Hi Juliana,

As stated in the email 1 of 3 - the sum of the Q4 deliverables are too large to send in one email; therefore, I'm spreading them over 3 emails. Each email will have a separate transmittal form for the included deliverables.

This second of 3 emails includes:

- Q4-16 Deliverables Transmittal 2
- 2016 Annual Work Plan
- 2016 Program Management Plan

If you have any questions, or something fails to open for you, please let me know.

Desi Malone
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Federal Railroad Administration

Office of Passenger and Freight Programs

California High-Speed Train Program

FR-HSR-0009, FR-HSR-0118

Annual Deliverables Discussion

FRA Review Comments

Thursday, May 25, 2017

FRA's Overarching Comments

FRA's Review Comments RE All 3 Annual Deliverables

FRA needs to understand the "how."

- FRA would like to understand CHSRA's processes (the "how"), so that we can be comfortable with CHSRA's self-assurances – so that we can defend/explain CHSRA's actions.
    - We understand that some of the information/topics we discuss on the slides that follow can be sensitive in nature, so FRA is open to other ways of communicating. The issue at present is that CHSRA is not communicating the requisite information/topics to FRA.
- In their current state, the annual deliverables focus on the "what"; what requirements CHSRA is following and what policies CHSRA is implementing.
    - This does not allow for effective communication to FRA, as it offers no new insight other than what is available to the public.
    - FRA is interested in "how" CHSRA is meeting requirements and implementing policies.

How Deliverables Relate & Differ

How Annual Deliverables Relate & Differ

Program Management Plan

- The Program Management Plan (PMP) covers CHSRA's approach to manage scope, schedule, budget, and risk over the life of the program.
  - The PMP is the framework and foundation for the other deliverables.

Annual Work Plan

- The Annual Work Plan (AWP) explains what CHSRA is doing this year to stay on target with scope, schedule, budget, and risk.
  - Explain how is the CHSRA staying on top of things this year in the context of its approach to manage scope, schedule, budget, and risk over the life of program as detailed in the PMP.

Central Valley Project Financial Plan

- The Central Valley Project Financial Plan (CVPFP) is a financial plan for the First Construction Segment, including its early/interim use.
  - Tasks 1-4 (but only for Merced – Fresno and Fresno – Bakersfield) and Tasks 5-10.
  - The grants specifically fund the First Construction Segment, not the Silicon Valley to Central Valley Initial Operating Segment.

Other Related Deliverables

Phase 1 Program Financial Plan

- The Phase 1 Program Financial Plan is a financial plan for the scope of work of the grants.
  - A financial plan that covers the First Construction Segment (FCS) as well as the environmental clearance and preliminary design/engineering for Phase 1.
  - This is in contrast with a financial plan that covers environmental clearance, preliminary design/engineering, final design, construction, and operation of Phase 1, which is the subject of CHSRA's Business Plans.
  - This plan is inclusive of the CVPFP. This is a one-time deliverable whereas the CVPFP is annual because the budget for the FCS is more likely necessitate changes, given the nature of construction. However, CHSRA may revise/update any deliverable at any time as warranted.

Other Related Deliverables

Quarterly Progress Reports

- Four quarterly progress reports… shall be submitted for periods: January 1 – March 31, April 1 – June 30, July 1 – September 30, and October 1 – December 31. The Grantee shall furnish one (1) copy to the Grant Manager on or before the thirtieth (30th) calendar day of the month following the end of the quarter being reported. Each report shall set forth concise statements concerning activities relevant to the project, and shall include, but not be limited to, the following:
  - Relate the state of completion times in the Statement of Work to expenditures of relevant budget estimates.
  - An account of significant progress (findings, events, trends, etc.) made during the reporting period.
  - A description of any technical and/or cost problems encountered or anticipated that will affect completion of the grant within the time and fiscal constraints as set forth in the grant agreement, together with recommended solutions or corrective action plans (with dates) to such problems, or identification of specific action that is required by the FRA, or a statement that no problems were encountered.
  - An outline of work and activities planned for the next reporting period.

K0123

Program Management Plan Deep Dive

Program Management Plan Review Comments Deep Dive

The United States Code requires a PMP to provide for the following:

1. adequate recipient staff organization with well-defined reporting relationships, statements of functional responsibilities, job descriptions, and job qualifications;
2. a budget covering the project management organization, appropriate consultants, property acquisition, utility relocation, systems demonstration staff, audits, and miscellaneous payments the recipient may be prepared to justify;
3. a construction schedule for the project;
4. a document control procedure and recordkeeping system;
5. a change order procedure that includes a documented, systematic approach to handling the construction change orders;
6. organizational structures, management skills, and staffing levels required throughout the construction phase;

Program Management Plan Review Comments Deep Dive

The United States Code requires a PMP to provide for the following:

7. quality control and quality assurance functions, procedures, and responsibilities for construction, system installation, and integration of system components;
8. material testing policies and procedures;
9. internal plan implementation and reporting requirements;
10. criteria and procedures to be used for testing the operational system or its major components;
11. periodic updates of the plan, especially related to project budget and project schedule, financing, and ridership estimates; and
12. the recipient's commitment to submit periodically a project budget and project schedule to the Secretary.

Questions

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K0128

From: Malone, Desiree@HSR
To: Barnes, Juliana (FRA)
Cc: Everett, Lynn (FRA); Gilliland, Barbara(PB)@HSR; Giovinazzi, Giles@DOT
Subject: Q3-17 Deliverables
Date: Monday, October 30, 2017 9:14:33 AM
Attachments: CVPFP June 2017.pdf
FY17-18 AWP.pdf
Q3-17 Deliverables Transmittal.doc

Hi Juliana,

Attached in this email are deliverables due in Q3-17:

- Q3-17 Transmittal #06646
- Task 1: Various Re-exams (links are in the transmittal)
- Task 5: Annual Work Plan and Central Valley Project Financial Plan

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K0129

CALIFORNIA
High-Speed Rail Authority

Central Valley Project Financial Plan (CVPFP)

June 2017

For FY2016/-17

www.hsr.ca.gov

K0130

Table of Contents

DOCUMENTS INCORPORATED BY REFERENCE

2012 Business Plan	http://hsr.ca.gov/About/Business_Plans/2012_Business_Plan.html
2014 Business Plan	http://hsr.ca.gov/About/Business_Plans/2014_Business_Plan.html
2016 Business Plan	http://hsr.ca.gov/About/Business_Plans/2016_Business_Plan.html
Funding Contribution Plan	http://www.hsr.ca.gov/docs/about/funding_finance/funding_agreements/FCP_Q2_17.pdf
Risk Management Plan	2017 Version

Introduction

The California High-Speed Rail Authority (Authority) has prepared this Central Valley Project Financial Plan (CVPFP) in accordance with Federal Railroad Authority (FRA) terms of Cooperative Agreement FR HSR-0009-10-01-06 (American Recovery and Reinvestment Act [ARRA]) and Cooperative Agreement FR-HSR-0118-12-01-00 (High-Speed Intercity Passenger Rail Program (HSIRP) for federal fiscal year 2010 [FY10]). The CVPFP is the Authority's annual financial plan and details the funding available to construct the initial section of California's high-speed rail project in the Central Valley.

The Central Valley Project Overview

This CVPFP is being submitted pursuant to the above-referenced ARRA and FY10 grant agreements as the financial plan for July 1, 2016 through June 30, 2017. The Central Valley Project (CVP) was previously known as the First Construction Segment (FCS) of the Initial Operating Section (IOS) in the California High-Speed Rail Program's 2012 and 2014 Business Plans. In the 2016 Business Plan (2016 Plan), the Authority renamed the IOS to be constructed as the Silicon Valley to Central Valley line (Valley to Valley) which runs from north of Bakersfield to San Jose and includes the CVP. The CVP will not include a high-speed operating service on its own; therefore, this CVPFP references the Valley to Valley line, where appropriate, to provide context within the wider program relevant to the CVP. For the purposes of creating this document, the March 2017 Financial Contribution Plan (FCP) has been used as a reference and all data is sourced from that document. Map 1, below, shows the alignment of the CVP.

Previously, the scope of the CVP included construction of an estimated 130 miles of civil works and track. The CVP described in this CVPFP is approximately 119 miles in length. The CVP constitutes the first leg of the Phase 1 high-speed rail program, which will include approximately 520 miles of dedicated high-speed rail and blended track between San Francisco and Los Angeles/Anaheim. The scope of the grant agreements includes Tasks 1-10, which are described in further detail in Section B of this CVPFP.

ARRA and FY10 Grant Agreement Tasks:

1. Environmental Review
2. Preliminary Engineering (PE)
3. Other Related Work Needed Prior to Start of Construction
4. Project Administration and Statewide Cost Allocation Plan
5. Program, Project, and CVP Construction Management
6. Real Property Acquisition and Environmental Mitigation
7. Early Work Program (removed in Amendment 6 of the ARRA Agreement)
8. Final Design and Construction Contract Work for CVP
9. Interim Use Project Reserve
10. Unallocated Contingency

Map 1: Central Valley Project

As of December 2016

Selection of the Central Valley Project

The Authority submitted applications for federal grant funds under ARRA and FY10 appropriations for four sections:

- San Francisco to San Jose
- Merced to Fresno
- Fresno to Bakersfield
- Los Angeles to Anaheim

The Central Valley sections were selected as initial construction sites and were prequalified for funding. To ensure that both federal criteria and conditions in Proposition 1A (Prop 1A) (the state's funding resources) were met, the Authority and the FRA determined that using ARRA funds for construction in the Central Valley would be the most advantageous funding strategy. ARRA funds have been used for both construction and project development activities while FY10 funds will be used for construction activities.

Beginning construction in the Central Valley is an important first step for the high-speed rail system, as it will create the backbone of the statewide high-speed rail system; from there the high-speed rail will be extended north and south to complete the first true high-speed rail system in the nation.

Project History

In September 2012, the FRA issued a Record of Decision (ROD) approving the Hybrid Alternative Alignment for the Merced to Fresno project section, which was selected by the Authority's Board of Directors in May 2012. The Final EIR/EIS for the Merced to Fresno project section Hybrid Alternative is available at:

http://www.hsr.ca.gov/Programs/Environmental_Planning/final_merced_fresno.html

In June 2014, the FRA issued a ROD approving the alignment for the Fresno to Bakersfield project section, which was selected by the Authority's Board of Directors in May 2014. The Final EIR/EIS for the Fresno to Bakersfield project section is available at:

http://www.hsr.ca.gov/Programs/Environmental_Planning/final_fresno_bakersfield.html

As with many projects of this magnitude, the initial implementation stages often reveal unknowns that require strategies to be adjusted. Some of these discoveries have worked in favor of the project and some have presented challenges. The Authority's experience with the overall delivery to date has resulted in lessons learned as well as development of best practices.

In 2013, the Authority initiated competitive design-build (DB) procurement processes for the first three construction contracts for the Central Valley.

In August 2013, the Authority executed its first DB contract with Tutor Perini Zachary Parsons (TPZP), known as Construction Package 1 (CP 1). CP 1 consists of a 29-mile segment from Avenue 17 in Madera south, to East American Avenue in Fresno.

In April 2014, the Authority executed a contract with Dragados Flatiron Joint Venture, known as Construction Package 2-3 (CP 2-3). CP 2-3 consists of the next 65 miles from Fresno heading south to one mile north of the Tulare-Kern County line (north of Bakersfield).

In January 2016, the Authority executed a contract to California Rail Builders for Construction Package 4 (CP 4). CP 4 will run approximately 22 miles through the Central Valley, from one mile north of the Tulare-Kern County line to Poplar Avenue in Shafter, north of Bakersfield.

The official groundbreaking of construction for the high-speed rail system was held on January 6, 2015 in Fresno. In the time that followed, the Authority has advanced construction, secured Right of Way (ROW) parcels, attained permits, continued geotechnical investigations essential to structural design, demolished structures, and relocated utilities along the right of way, all in preparation for the construction of dedicated high-speed rail trackways and bridges. The CVP is anticipated to be fully operational, as part of the Valley to Valley line, by 2025.

Recent Progress

In March 2017, the Authority received notification that the Central Valley Segment (equivalent to the CVP) funding plan that was submitted to the Director of Finance and the Chairperson of the Joint Legislative Budget Committee pursuant to Streets and Highways Code section 2704.08 2 (d) Plan was approved. This allowed the Authority to request the State Treasurer to sell bonds for the project on its behalf. In May 2017, the Authority received $1.25 billion of bond proceeds, the first funding out of the total $2.609 billion appropriated by the Legislature and approved in the (d) Plan.

With construction work on the CVP now well underway, a comprehensive set of project management, finance, and risk reports have been developed and are updated monthly, reviewed by the Finance and Audit Committee of the Board, and posted to the Authority's website:

http://www.hsr.ca.gov/Board/monthly_fa_committee_meeting.html

Early Train Operator

In September 2017, the Authority plans to review the responses to a request for proposals (RFP) for the Early Train Operator (ETO). The ETO will provide an advisory function relating to the development of operations on the system and confirm that (1) operational considerations are taken into account during the planning, design, and construction phases; and (2) the Authority is planning the system in a way that will promote its attractiveness to riders and maintain affordable operating and maintenance costs. More information can be found here:

https://www.hsr.ca.gov/Programs/early_train_operator.html

The Authority's March 2017 Project Update Report provides a comprehensive description of all of the Authority's actives as it continues to develop the system. It is available here:

http://www.hsr.ca.gov/docs/about/legislative_affairs/SB1029_Project_Update_Report_030117.pdf

Description of Tasks

Pre-construction/Development Phase Activities

The federal grants have funded pre-construction/development phase activities both in the area of the CVP and throughout other Phase 1 segments. Tasks 1 through 4 comprise this phase. Additional details may be found in Section B of this Plan. The status of key activities is summarized below.

Tasks	**Activities**
1. Environmental Review*	The Authority has eight project-level EIR/EIS studies under way for Phase 1 of the system, two of which are supplemental EIR/EIS to the already approved Records of Decision for Merced to Fresno and Fresno to Bakersfield.
2. Preliminary Engineering (PE)	The Authority, in coordination with the FRA, is completing PE for all Phase 1 sections. The Authority, with assistance from their Rail Delivery Partner (RDP), conducts ongoing oversight of the Regional Consultants (RCs) performing the work.
3. Other Related Work Needed Prior to Start of Construction	In the area of the CVP the Authority has undertaken such activities as ROW acquisition support and construction planning/procurement support, including coordination with other federal, state and local agencies, and negotiation with rail line owners and operators. Station area planning throughout Phase 1 areas also is included in this task and will continue past the start of construction.
4. Project Administration and Statewide Cost Allocation Plan (SWCAP)	The grant agreements permit the Authority to seek reimbursement for administrative costs, as well as costs incurred from other state agencies that provide services to the Authority (e.g., the DOF, the Department of General Services, and the Department of Justice). Task 4 has been completed and is closed.

** The environmental review process is being conducted in accordance with the requirements of the National Environmental Policy Act (NEPA), the California Environmental Quality Act (CEQA), Section 106 of the National Historic Preservation Act, Section 4(f) of the Department of Transportation Act (49 U.S.C. 303), and other applicable environmental laws and regulations (collectively NEPA/CEQA)*

Construction Phase Activities

The federal grants have funded construction phase activities for the CVP. Tasks 5 through 10 comprise this phase. Additional details may be found in Section B of this Plan. The status of key activities is summarized below.

Tasks	**Activities**
5. Construction and Project Management	CHSRA will provide the appropriate program, project, and FCS construction management activities, oversight, and reporting of all other Tasks in this Agreement. These activities will include but are not limited to coordination with appropriate local, regional, State, and Federal agencies, all railroad owners and operators within the FCS area whose infrastructure might be affected by the FCS, and outreach to local communities affected by the Project.

Tasks	**Activities**
6. Real Property / Right-of-Way (ROW) Acquisition	The high-speed rail program requires the acquisition of an unprecedented number of parcels of land. Based on lessons learned from CP 1, a more efficient process was implemented that has allowed the Authority to significantly increase the rate of parcels acquired per month. The Authority is on schedule with respect to the CP 2-3 and CP 4 contracts. As of June 30, 2017, the Authority has secured legal possession of 1,184 parcels with 1,120 parcels delivered to the design-builder. The Authority is focused on acquisition and delivery of crucial early construction parcels through utilization of settlement teams and partnering with the design-builders.
7. Early Work Program	Deleted in Amendment 6 of the ARRA agreement.
8. Final Design and Construction Contract Work for CVP	Final design and construction contract work is being covered by three separate geographically based design-build contracts and at least one DB track-work contract.
9. Interim Use Project Reserve	This funding is sourced through the FY10 grant and is reserved for future contingency purposes and requires FRA pre-approval prior to expenditure. The high-speed rail project is not yet at a point in the project life to include discussion on this Task in the CVPFP.
10. Unallocated Contingency	The Authority has allocated approximately one percent of the project budget as unallocated contingency. Contingency management is currently addressed in the approved Unallocated Contingency Management Plan and the Program Risk Management Plan (attached), but a more comprehensive Contingency Management Plan (allocated and unallocated) is in development. Also, the PCMs are required to develop a contingency management plan to manage the project allocated contingency as noted in the PCM Manual, Section 3.18.

Supporting Functions	**Activities and Recent Progress**
Third Party Agreements	Negotiations for third party agreements (railroads, utilities and others) proved to be more difficult than anticipated. Mitigation strategies were implemented successfully so that key agreements with the railroads and the utility companies (power, water and communications) were completed in order to begin construction.
Legal	In July 2014, the California 3rd District Court of Appeal ruled in the Authority's favor on two lawsuits relating to our ability

Supporting Functions	**Activities and Recent Progress**
	to access Prop 1A bond funds. Subsequently, in October 2014, the California Supreme Court chose not to review the lawsuits, making the Court of Appeal decision final. In addition, they rejected the temporary injunction on the bond lawsuits related to the (d) Plan.
Partners	The Authority continues to work with the California Transportation Agency (CalSTA), California Department of Transportation (Caltrans), and statewide rail partners to advance potential early use of the CVP. These planning efforts are progressing to satisfy FRA's requirement for independent utility in the event the Authority is unable to fund the remainder of the Valley to Valley line. These efforts include identifying all elements, stakeholder roles and responsibilities, and costs necessary for an operational CVP.

Other Construction Activities

Recently, the Authority and the City of Fresno held a ribbon-cutting ceremony to commemorate the opening of the new and improved Tuolumne Street Bridge in downtown Fresno. The completion of this bridge marks the first completed structure for the California high-speed rail program.

Activities in the Central Valley Include:

American Avenue (started work June 2017):

- June-October: Completed abutment 1 and abutment 4, completed AT&T relocation
- October: Continue pile/pin repairs at abutment 4 and backfill abutment
- November: Begin Frame/Reinforcement/Pour columns at columns 2 and 3, begin bent 2 cap shoring

Golden State Blvd Realignment:

- October/November 2017: Continue work on Retaining walls (RW 13, 18), begin work on approach slab at abutment 3 for Clinton Ave OC, continue form and place deck for Fresno Ave OH, continue backfill for abutments 1 and 4, continue to form and place deck at Ashlan Ave OH

Tulare Street UC (started work July 2017):

- July-October: clear and grub, reinforcement cages
- October 2017: Demolition of roadway, utilities relocation, roadway and structural excavation
- November 2017: Begin forming and placement of reinforcement in footings

Kern Street (started work October 2017):

- October/November 2017: Close roadway, place message boards and implement centralized traffic control (CTC), begin intersection work in preparation for the start of bridge structure work

Ventura St UC (started work October 2017):

- October/November 2017: Close roadway, place message boards, begin intersection work in preparation for the start of bridge structure work

Avenue 12 (started work February 2017):

- February-October: Embankment, complete footing, columns and bent cap at bent 2, MSE wall footings, started abutment 1 and 3 footing work
- October 2017: Complete CIDH piles at abutments 1 and 3, form footings at abutments 1 and 3, AT&T work
- November 2017: Start placing rebar for footing and continue work at abutments 1 and 3

Avenue 11 (started work August 2017):

- August-October: clear and grub, reinforcement cages
- October 2017: Install CTS, continue import borrow for the embankment, begin drainage work, form rebar cages for CIDH piles at abutments 1 and 2
- November 2017: Begin drilling CIDH piles and continue work on piles and footing at abutment 1

In addition, the Authority anticipates that the following activities will be available for commencement in 2021:

- Nearing completion of civil construction in the Central Valley, including areas available for the start of track work
- Procurement of our first prototype high-speed trainsets
- Beginning to expand construction beyond the Central Valley and planning for the start of service
- Thereafter, the Authority will complete test track installations on the CVP in preparation for passenger service, and take delivery of the remaining part of the first trainset order in accordance with the 2018 Business Plan

Organization of the Plan

This plan is organized into five sections, as described in the table below. Additional appendices are provided at the end of the plan, as shown in the table of contents.

Section	Description of Contents
A: Sources of Funding	Describes the sources of funding available to the project in detail.
B: Annual Sources and Uses Projections	Presents annual sources and uses split out by task and by funding source for both construction and pre-construction/development phase activities. This section also describes in detail the individual tasks and the development of cost estimates.
C: Risks	Presents the risks as reported by the Authority's risk management function. Detailed risks by categorization are also provided in the appendices.
D: Costing Methodology	Addresses projected capital and operating costs and revenues for the CVP (as part of the Silicon Valley to Central Valley line), and describes key assumptions and methodologies.
E: Interim Use Reserves	Describes the interim use and independent utility options available to the project.

A. Sources of Funding

Demonstrates the Authority has identified the sources of funding other than that provided through this Agreement required to complete construction of the Project and has a strategy to secure firm commitments of such funds… "fully committed" means a state legislature budget appropriation, enacted into law, with sufficient State Match funding to fund, with FRA's match, the budget of the Project.

Identified Sources of Funding

The estimated capital cost of the CVP in year-of-expenditure (YOE) dollars is approximately $8.039B (a detailed sources and uses is contained in Section B) and will be fully funded from the following sources in compliance with the terms and conditions associated to each source:

- Federal grants authorized under the ARRA and FY10 grant agreements.
- State general obligation bonds authorized under the Safe, Reliable High-Speed Passenger Train Bond Act for the 21st Century (Bond Act) approved by California voters as Prop 1A in 2008.
- State Cap and Trade funds authorized through the Budget Act of 2014 (SB 852 and SB 862).
- In July 2017, the California Legislature passed, and the governor signed AB 398 (Garcia), extending Cap and Trade beyond 2020 to the end of 2030, expanding a long-term funding source for the Authority.

Combined Funding Sources

Exhibit A-1. Funding for the CVP Planning Costs

Central Valley Project Planning	$'000s
Funding Sources	
FY10 Grant Federal	$0
ARRA Grant Federal	$474,672
State Match and Other State Funds	$480,928
Local	$52,100
Total	**$1,007,700**

Source: Submitted FCP Report Jun-17 (Funding Contribution Plan) (pg. 14 of 67)
Note: State Match and Other State Funds, above, include Prop 1A and Cap and Trade

Exhibit A-2. Funding for CVP Construction Costs

Central Valley Project Construction	$'000s
Funding Sources	
FY10 Grant Federal	$928,620
ARRA Grant Federal	$2,077,884
State Match and Other State Funds	$4,024,724
Local Match	$-
Total Construction	**$7,031,228**

Source: Submitted FCP Report Jun-17 (Funding Contribution Plan) (pg. 14 of 67)
Note: State Match and Other State Funds, above, include Prop 1A and Cap and Trade

In addition to appropriated funds, the Authority receives annual income from leases relating to ROW that it owns. The money is deposited into a revolving account, from which proceeds are used to further eligible Project objectives.

Federal Funding Summary

The ARRA and FY10 federal grants include $2.078B and $928.6M, respectively, for construction activities associated with the CVP, totaling $3.007B; ARRA also allocates $474.7M for Project Development activities such as pre-engineering and federal and state environmental approvals (e.g., PE/NEPA/CEQA[1]) associated with Phase 1 of the system, described later in this CVPFP. Details of the allocation of these funds to various project segments can be found in Section B of this Plan.

State Funding Summary

Multiple state and local funding sources are described in this CVPFP. California's Prop 1A funds include $2.609B, specifically appropriated for CVP construction activities, which were committed through the enactment of SB 1029, passed by the California State Legislature and signed by Governor Brown in July 2012. These funds are being used to meet the federally required match. The State also is providing $480.9M matching funds (Prop 1A and Cap and Trade) for the development phase of the CVP and other Phase 1 segments, and local sources are providing $52.1M for the development phase (Task 3, specifically). See "Receipt of Firm Funding Commitments," below, for additional details regarding the SB 1029 appropriations of Cap and Trade funds. See Section B, Exhibit B-2, for the Cost Summary Table showing allocation of these federal, state, and local funds to the CVP construction and Phase 1 development costs.

[1] PE: Preliminary engineering; NEPA: National Environmental Policy Act; and CEQA: California Environmental Quality Act.

Prop 1A

The Bond Act authorizes the state to issue $9.95B of general obligation bonds, $9B of which will be used to build the high-speed rail system. Prop 1A bond proceeds currently fund the environmental, planning, engineering, and administrative operations of the Authority and will also contribute to the construction of the high-speed rail system.

The remaining $950M authorized under Prop 1A is allocated for capital improvements to commuter and intercity rail lines such as connectivity, preliminary engineering, ROW acquisition, and the construction of tracks, structures, power systems, and stations. Additionally, rolling stock and related equipment, as well as other capital-related facilities and equipment, are permissible expenditure purchases with these funds.

Prop 1A establishes a multi-step process that must be completed prior to the issuance of bonds to construct the high-speed rail project. The Authority must meet pre-appropriation review requirements before the State Legislature will appropriate funds for the segment. In particular, the pre-appropriation review process is codified in Streets and Highways Code (S&H) section 2704.08(c), which requires the Authority to submit a detailed funding plan (the Funding Plan) to the Director of Finance, the Independent Peer Review Group[2] and the fiscal and transportation policy committees in both houses of the State Legislature, 90 days prior to submitting the initial request for appropriation of bond proceeds for construction phase costs. The detailed Funding Plan must be approved by the Authority's Board of Directors and the Legislature must then appropriate the budget for the expenditure of the future bond proceeds. The Authority submitted such a funding plan in 2011 and SB 1029 appropriated the Prop 1A funds for the CVP in 2012.

Following appropriation, the High-Speed Passenger Train Finance Committee authorizes the issuance of the bonds. The Authority also must meet a pre-expenditure review requirement prior to committing bond proceeds for construction purposes. Pursuant to S&H section 2704.08(d), prior to committing any bond proceeds for construction expenditure purposes, the Authority shall submit another detailed funding plan (the Expenditure Funding Plan), highlighting any changes from the original Funding Plan and meeting other statutory requirements. The Expenditure Funding Plan will be submitted to the Director of Finance and the Chairperson of the Joint Legislative Budget Committee for review and is subject to approval by the Director of Finance within 60 days. Both the Finance Committee and subdivision (d) Plan requirements were met since 2012 and the bond funds are now available for sale at the State's semi-annual general obligation bond sales. To date, the State has sold $1.25B of Prop 1A

[2] The Peer Review Group is established under Section 185035 of the Public Utilities Code. The Peer Review Group is comprised of eight independent members: Two individuals with experience in the construction or operation of high-speed trains in Europe or Asia (designated by the State Treasurer); two individuals with engineering and construction of high-speed trains and one with experience in project finance (designated by the State Controller); one representative from a financial services or financial consulting firm (designated by the State Director of Finance); one representative with experience in environmental planning (designated by State Secretary of Business, Transportation and Housing); and two expert representatives from agencies providing intercity or commuter passenger train services in California (designated by the State Secretary of Business, Transportation and Housing). The purpose of the Peer Review Group is to review the planning, engineering, financing and other elements of the Authority's plans and issue an analysis of appropriateness and accuracy of the Authority's assumptions and an analysis of the viability of the Authority's financing plan.

bonds for construction on the high-speed rail project. When proceeds for planning and administration are included this number increases to $1.824B.

Prop 1A stipulates that bond proceeds may not be used for more than 50 percent of the total cost of construction of each corridor or usable segment of the system. In addition, Prop 1A establishes caps on the amount of funds, currently at 7.5 percent, that may be expended by the Authority for preliminary engineering, planning, certain acquisitions of real property and ROW and improvement thereof and environmental studies. Prop 1A also limits the Authority's use of bond proceeds for administrative purposes to 2.5 percent with a possible increase to 5 percent with legislative approval.

The Authority's appropriation request for the CVP construction under the subdivision (c) Funding Plan was included in the FY2012/13 budget, in the amounts of approximately $2.6B in state bond proceeds from the High-Speed Passenger Train Bond Fund, in addition to approximately $2.45B in federal funds that have been allocated and are received under the advanced payment agreement. The Authority's appropriations also include additional state and federal funding for the pre-construction, development phase activities in other sections. The Authority's FY2012/13 appropriations were contained in Senate Bill 1029 (SB 1029), which the Governor signed on July 18, 2012, authorizing the use of a total of $4.7B of state bond funds for the following rail purposes:

1. Match federal and local funds for the development and construction of the California High-Speed Rail System; and
2. Fund development and construction of local transit improvements and projects in shared corridors eligible for $2.1B in state funding under the Bond Act.

The Authority works closely with the California Department of Finance (DOF) to develop cash flow projections for the Authority's funding needs. The Authority completes a biannual bond survey that is submitted to the DOF to identify its needs for bond proceeds for the next five fiscal years.

The DOF will then include the sale of general obligation bonds as part of its cash flow projections, which are submitted to the State Treasurer's Office (STO). Funding needs are then incorporated when the STO determines the timing and amount of the State's general obligation bond sales. The Prop 1A bonds are sold as part of a combined issuance of State of California general obligation bonds for a variety of voter-approved purposes.

The STO manages the issuance of the State's general obligation financings using two tools – short-term commercial paper and long-term bonds. General obligation commercial paper has maturities of under 270 days, and long-term general obligation bonds typically have final maturities of ten to 30 years. Commercial paper may be issued as frequently as weekly and then may be "refunded" by issuance of the long-term bonds on a less frequent basis (e.g., quarterly). In combination, these tools enable the STO to manage its bond issuance capacity to cost-effectively meet the needs of various state programs, such as the high-speed rail program, that rely on timely receipt of bond proceeds to advance critical projects.

In order to carefully manage the use of the State's limited Prop 1A bonding authority, the Authority has worked with the DOF, the STO and the State Controller's Office (SCO), as needed, to further enhance and streamline cash management processes. The resulting enhancements enable the Authority's cash flow projections to consider the overall expenditures needed, the expenditures that will be eligible for federal funds, and the receipt of those federal payments, which can provide future cash flow for subsequent project expenditures. The Authority has provided its cash flow projections through FY2016/17, and includes the funding needs for the CVP over that period. The Authority's cash flow

projections are updated on a quarterly basis, to provide adequate and timely funding for the Authority's needs.

Cap and Trade Revenues

State Cap and Trade funds were initially authorized through the Budget Act of 2014 (SB 852 and SB 862).

In addition to the State's previous approval of funding from the Bond Act, 2014 brought a new and continuing source of expanded state funding for the program. On June 20, 2014, the Governor signed the Budget Act of 2014 (SB 852 and SB 862), which included an appropriation of proceeds from the State's Cap and Trade program to various programs and projects that will reduce greenhouse gas emissions in furtherance and accordance with AB 32, the California Global Warming Solutions Act of 2006. Specifically, SB 852 appropriated $872M in Cap and Trade auction proceeds from the Greenhouse Gas Reduction Fund (GGR Fund) in FY2014-15, with $250M going to the high-speed rail project. SB 862 also appropriated $400M to the Authority to be made available in FY2015-16, and continuously appropriated until expended. These one-time appropriations are augmented by the Cap and Trade Expenditure Plan (Plan), which established a programmatic structure for the continuous appropriation of annual Cap and Trade proceeds from the GGR Fund. The ongoing investments made by the Plan align with the investment areas identified by the California Air Resources Board's *Cap and Trade Auction Proceeds Investment Plan: FY2013-14 and FY2015-16,* to reduce greenhouse gas emissions that contribute to climate change and cut other forms of air pollution, particularly in disadvantaged communities. Under the provisions of SB 862, the Authority will receive 25 percent of Cap and Trade revenues on an on-going basis (the continuous appropriation). To date the Authority has received the following one-time Cap and Trade appropriations on top of the continuous appropriations from quarterly Cap and Trade auction proceeds.

- $250M, one-time appropriation in CA Budget Act of 2014
- $400M, one-time appropriation in CA Budget Act of 2014 on loan to the General Fund

The continuous appropriation provides the Authority with the flexibility either to supplement grant funds to pay for planning and construction costs, and/or to repay loans taken out by the Authority. CVP costs that meet the conditions set out in SB 862 are eligible for the Cap and Trade funding. This funding is also available for costs of the other elements of the Phase 1 system, which may be constructed concurrently with the CVP. An extract of SB 862 is provided in Appendix 4.

Most recently, AB 398 (Garcia) was approved by the California Legislature and signed into law by the Governor. The bill extends the horizon of the Cap and Trade program through December 31, 2030.

As of August 2017, Cap and Trade revenues have yielded the following:

FY2014-15 Budget Act – $250,000,000

Budget Act of 2014 – $400,000,000

Subtotal – $650,000,000

Auction Proceeds

August 2015 Auction – $161,332,633

November 2015 Auction – $164,194,827

February 2016 Auction – $129,246,998

May 2016 Auction – $2,509,168

August 2016 Auction – $2,096,977

November 2016 Auction – $91,077,691

February 2017 Auction – $2,040,971

May 2017 Auction – $127,763,162

August 2017 Auction – $140,431,000

Subtotal – $820,693,426

Total Cap and Trade Funding – $1,470,693,426

Receipt of Firm Funding Commitments

The Authority's strategy to secure firm commitment of Prop 1A bond proceeds for the CVP was to request appropriation of all necessary funding for the project through the state budget process in the FY2012/13 budget year. The state budget process is described in detail in Appendix 2.

To secure the CVP construction funding, the Authority submitted the Initial Funding Plan and the Budget Change Proposals (BCPs) necessary for appropriation of these and other program funding requirements as part of the FY2012/13 budget process. Ultimately, the Authority's requested appropriations for this period were contained in SB 1029, which was approved by the Legislature and signed into law by Governor Brown on July 6, 2012.

SB 1029 included the appropriation of the federal and state funding necessary for the construction of the CVP. See Exhibit A-3 below, for appropriations for the High-Speed Rail project. This bill also specifies that the Authority must meet a variety of reporting and review requirements over the course of the CVP and beyond, including a bi-annual project update report (due in March in years when a Business Plan is not released), a staff management report, a project budget certification, and a risk analysis.

Exhibit A-3. High-Speed Rail Project Appropriations Under SB 1029 (Budget Act of 2012)

	Purpose / Sources	Amounts
Purpose:	Begin construction of the Initial Operating Segment (IOS) of the High-Speed Rail System in the Central Valley (now called the Central Valley Project). These appropriations are continuous, until expended.	
Sources:	Federal Funding	$3.2B
	State Funding	$2.6B
	Total	$5.8B

Source: SB 1029, for FY2012/13 State Budget

Because the Authority is simultaneously moving forward, pursuant to the 2016 Business Plan, with its plans for development of the program beyond the CVP, it also has been necessary to pursue new funding in addition to existing federal grants and state bond proceeds. As described earlier in this plan, with the enactment of SB 862, a new dedicated state funding source is available to the program through specified portions of the GGR Fund derived from revenues of the State's Cap and Trade Program. The funding commitment provided from GGR Fund revenues includes the amounts described under State Funding Summary above.

B. Annual Sources and Uses Projections

The financial plan shall provide (in year-of-expenditure dollars) finalized annual projections for the sources and uses of all funds, during the development and construction phases of the project.

Annual Sources and Uses

The annual sources and uses of funds for the development phase of Phase 1 and the construction of the CVP are detailed in the Funding Contribution Plan (FCP). The FCP is provided quarterly to the FRA, as a requirement of the grant agreement. The Authority works with the FRA in an on-going collaboration to further refine the FCP's content and format.

The cost forecasts for CP 1 and CP 2-3, and SR-99 Realignment Project (a 2.5-mile project within the limits of CP 1 managed by Caltrans) are based on approved cost-loaded schedules. These cost forecasts are monitored monthly for variances between the planned value and the earned value. Cost forecasts are adjusted monthly to account for variances, trends and changes. The Authority's rail delivery partner supports the Authority in providing and confirming this information monthly. Current CP 4 forecasts are based upon preliminary schedules, burn rates and project and construction management input.

The annual sources and uses are presented in Exhibit B-1, below, which also includes the annual sources and uses of funds broken out by Task 1 through 10 (descriptions sourced from grant agreements).

The sources and uses tables below represent historical and forecast expenditures provided to the FRA for reporting period ending June 2017 (pending FRA approval). This information has been further expanded to describe the two state funding sources that are presently available, Prop 1A and Cap and Trade. On a periodic basis, the Authority will determine what state funding will be used to match available federal grant funding to best optimize the funding plans for the entire program. This may result in changes to the makeup of state funding sources, but not a reduction. This information will be captured in successive reports, which will update the forecast use of funds and expenditures as information becomes available. The Authority will determine how it allocates state funding sources by considering all funding needs for the program and allocating them as it deems most appropriate.

Exhibit B-1. Combined Sources and Uses - Phase 1 Project Development and CVP Construction

	SOURCES AND USES ($ 000's)	Period Start Period End	1-Jul-10 30-Jun-11	1-Jul-11 30-Jun-12	1-Jul-12 30-Jun-13	1-Jul-13 30-Jun-14	1-Jul-14 30-Jun-15	1-Jul-15 30-Jun-16	1-Jul-16 30-Jun-17	1-Jul-17 30-Jun-18	1-Jul-18 30-Jun-19	1-Jul-19 30-Jun-20	1-Jul-20 30-Jun-21	1-Jul-21 30-Jun-22
Sources														
Federal:														
	ARRA	2,552,556	22,845	33,528	89,528	279,116	115,531	1,110,021	901,987	-	-	-	-	-
	FY 10	928,620	-	-	-	-	-	-	-	-	286,667	368,176	273,777	-
	Total Federal	**3,481,176**	22,845	33,528	89,528	279,116	115,531	1,110,021	901,987	-	286,667	368,176	273,777	-
State & Local														
	State	4,505,651	26,432	31,508	30,419	13,697	171,330	7,641	194,714	2,001,918	1,791,044	140,736	96,211	-
	Other/Local	52,100	-	-	-	-	-	-	-	37,076	15,024	-	-	-
	Total State And Local	**4,557,751**	26,432	31,508	30,419	13,697	171,330	7,641	194,714	2,038,994	1,806,067	140,736	96,211	-
Total Sources		**8,038,927**	**49,277**	**65,036**	**119,947**	**292,813**	**286,861**	**1,117,662**	**1,096,701**	**2,038,994**	**2,092,735**	**508,912**	**369,988**	**-**
Uses														
Task 1	Environmental Review	499,983	22,347	27,097	52,537	53,609	25,497	58,790	71,480	166,719	21,908	-	-	-
Task 2	Preliminary Engineering (PE)	336,010	26,314	33,525	42,068	45,317	10,744	53,459	43,883	76,525	4,174	-	-	-
Task 3	Other Related Work Needed Prior to Start of C	171,029	616	4,415	25,342	13,437	(4,437)	5,994	20,488	88,986	16,188	-	-	-
Task 4	Cost Allocation Plan (SWCAP) Program, Project	678	-	-	-	660	18	-	-	-	-	-	-	-
	Pre-Construction Subtotal	1,007,700	49,277	65,036	119,947	113,023	31,822	118,242	135,851	332,230	42,270	-	-	
Task 5	Management	558,627	-	-	-	41,605	57,537	111,296	122,395	84,837	95,968	39,277	5,712	-
Task 6	Real Property Acquisition and Environmental	1,071,993	-	-	-	74,367	116,264	300,990	334,587	213,309	32,476	-	-	-
Task 7	Early Work Program - N/A	-	-	-	-	-	-	-	-	-	-	-	-	-
Task 8	Final Design and Construction Work for the FC	4,766,599	-	-	-	63,818	81,238	533,278	503,868	1,408,618	1,564,206	469,635	141,940	-
Task 9	Interim Use Project Reserve	208,147	-	-	-	-	-	53,856	-	-	-	-	154,290	-
Task 10	Unallocated Contingency	425,862	-	-	-	-	-	-	-	-	357,816	-	68,047	-
	Construction Subtotal	7,031,228	-	-	-	179,790	255,040	999,420	960,850	1,706,764	2,050,464	508,912	369,988	-
Total Uses		**8,038,927**	**49,277**	**65,036**	**119,947**	**292,813**	**286,861**	**1,117,662**	**1,096,701**	**2,038,994**	**2,092,735**	**508,912**	**369,988**	-

Source: Submitted FCP Report Jun-17 (Funding Contribution Plan) (pg. 18 of 67)
Note: State funding sources line item includes both Prop 1A and Cap and Trade revenues for ease of presentation
Note: Small differences in sources and uses totals may occur due to rounding

Description of Tasks and Funding Sources for the High-Speed Rail Program

Below are descriptions of the Project Development tasks and the Construction tasks. Following the descriptions are tables presenting the federal, state, and local funding sources allocated for each task, and a segment-by-segment breakdown of the project development funding sources.

The **Project Development** phase of California's High-Speed Rail Program consists of four major tasks in the Authority's grant agreements; each task is included as part of the Phase 1 program in each of the eight sections of the system referenced below.

Project Section
San Francisco - San Jose
San Jose - Merced
Merced - Fresno
Fresno - Bakersfield
Bakersfield – Palmdale
Palmdale – Burbank
Burbank – Los Angeles
Los Angeles - Anaheim

The four major Project Development tasks are presented below:

Task 1 – Environmental Review. The environmental review process is being conducted in accordance with the requirements of the National Environmental Policy Act (NEPA), the California Environmental Quality Act (CEQA), Section 106 of the National Historic Preservation Act, Section 4(f) of the Department of Transportation Act (49 U.S.C. 303), and other applicable environmental laws and regulations (collectively NEPA/CEQA). FRA is the federal lead agency responsible for NEPA compliance, and the Authority is the state agency responsible for CEQA compliance. To satisfy both NEPA and CEQA, a combined environmental document is prepared—EIR (Environmental Impact Report) for CEQA and EIS (Environmental Impact Study) for NEPA. The combined environmental documents are referred to as EIR/EIS. The Authority has eight project-level EIR/EIS studies under way for Phase 1 of the system, two of which are supplemental EIR/EIS to the already approved Records of Decision for Merced to Fresno and Fresno to Bakersfield.

Task 2 – Preliminary Engineering (PE)***.*** The Authority, in coordination with the FRA, is completing PE for all Phase 1 sections described above. The Authority, with assistance from their rail delivery partner, conducts ongoing oversight of the Regional Consultants (RCs) performing the work. The RCs are guided by design criteria set forth in the technical memoranda for the system. Design consistency will be achieved by adherence to the design criteria as they develop preliminary engineering for procurement (and additional design work for discrete areas as needed and agreed to by FRA).

Task 3 – Other Related Work Needed Prior to Start of Construction. In addition to the Environmental Review (Task 1) and Preliminary Engineering (Task 2) described above, the Authority will also complete the additional work required prior to start of construction, including ROW acquisition support, ridership forecasting, and construction planning/procurement support. For portions of the high-speed rail line where a defined general alignment has been

selected, the RC will conduct assessments to identify segments at risk of imminent development, or other changes in use that could significantly increase implementation costs. The RC will develop recommendations for protective advance acquisition consistent with state and federal requirements, and will perform necessary coordination with other federal, state, and local agencies and assist the Authority in making acquisitions to the extent such acquisitions have been approved and authorized by the Authority. As requested by the Authority, the RC will provide assistance in reaching agreement on terms of access to shared ROW with rail line owners and operators, shared capital and operating costs, types of improvement required to maintain existing operations, while allowing high-speed train operations, and other critical matters such as liability indemnification, insurance requirements, and other operational matters. This work may include participating in ROW negotiations between BNSF and UPRR. Station area planning is included in this task, to be initiated concurrent with Task 1 and would continue past the start of construction. High-speed rail investments in Southern California, as well as development and implementation of a small business program, which will continue past construction, are also included in this task.

Task 4 – Project Administration and Statewide Cost Allocation Plan (SWCAP). The grant agreements permit the Authority to seek reimbursement for administrative costs, as well as costs incurred from other state agencies that provide services to the Authority (e.g., the DOF, the Department of General Services, and the Department of Justice). Task 4 has been completed and is closed.

The **Construction** phase of the project consists of six tasks, presented below:

Task 5 – Program, Project, and Construction Management. This includes management, oversight, and reporting of all tasks necessary to complete the project, including coordination with appropriate local, regional, state, and federal agencies, railroad owners and operators within the project area, and outreach to local communities affected by the project. Specific construction management activities will include contract administration, submittal review, quality assurance inspection, materials inspection, management of claims and change orders, and review and approval of progress payment requests and final acceptance of the work. The Authority is also responsible for public communication and outreach to citizens, communities, and stakeholders during all aspects and phases of project design and construction.

Task 6 – Real Property Acquisition and Environmental Review. This task includes real property acquisition and associated activities that are not already covered under ROW Acquisition Support of the PE/NEPA/CEQA phase of the program. As of June 2017, the Authority has secured legal possession of 1,184 parcels with 1,120 delivered to the design-builder. ROW estimates were developed in accordance with the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 as amended (Title 42, sections 4601-4655, of the United States Code) (Uniform Act), and its implementing regulations, Title 49, Part 24, of the Code of Federal Regulations. Any and all eminent domain acquisitions are subject to State of California Civil Procedure. Acquisitions include ROW for track alignment and stations consistent with project requirements.

ROW estimates were prepared on a parcel by parcel basis considering the estimated real estate values of the impacted property, and include other compensatory factors as applicable, such as estimates of loss of business goodwill, relocation assistance, title/escrow costs, and property owner appraisals. The estimates also include a 30 percent contingency. The actual expenditures are based on approved appraisals and may include settlements through negotiations, deposits

for court-ordered possession, litigated settlements and/or trials. Each of these activities is subject to a stringent review/approval process to ensure the fair, equitable treatment of property owners and the appropriate use of public funds.

Task 7 – Early Work Program. The Early Work Program included planning, design, coordination, negotiation, legal activities, as well as construction, land acquisition, implementation costs associated with utility relocation, site clearing/demolition, railroad track relocation, highway/roadway relocation/grade separations, environmental remediation/hazardous materials disposal, and environmental (NEPA/CEQA) mitigation. Activities in this task were redistributed among other tasks with Amendment 6 to the ARRA grant.

Task 8 – Final Design and Construction Contract Work. Final design and construction contract work is being covered by three separate geographically-based design-build infrastructure contracts and at least one DB track-work contract.

Task 9 – Interim Use Project Reserve. This funding is sourced through the FY10 grant and is reserved for future contingency purposes and requires FRA pre-approval prior to expenditure. The high-speed rail project is not yet at a point in the project life to include discussion on this Task in the CVPFP.

Task 10 – Unallocated Contingency. The Authority has allocated approximately one percent of the project budget as unallocated contingency. The Unallocated Contingency has yet to be allocated to specific tasks. The use of contingency funds will be described in a future Contingency Management Plan.

The **Allocation of Funds** among federal, state and local sources toward Phase 1 Project Development costs and CVP construction costs are detailed in the FCP. As noted previously, the FCP is updated on a quarterly basis to reflect recent Board approved decisions and/or revised projections. The Cost Summary Table reflects both Planning and Construction tasks as of June 2017 and is presented here as Exhibit B-2, below. This table is followed by the Funding Allocation for Phase 1 Project Development costs, by segment, in Exhibit B-3.

Exhibit B-2. Cost Summary Table

Task Description	FY10 Grant Federal	ARRA Grant Federal	State	Local	Total	Additional State	Total
PHASE 1 PROJECT DEVELOPMENT							
Task 1: Environmental Review	$ -	$ 234,161,986	$ 265,821,152	$ -	**$ 499,983,138**	$ -	**$ 499,983,138**
Task 2:Preliminary Engineering (PE)	$ -	$ 188,438,378	$ 147,571,588	$ -	**$ 336,009,966**	$ -	**$ 336,009,966**
Task 3:Other Related Work Needed Prior to Start of Construction	$ -	$ 51,393,949	$ 67,534,765	$ 52,100,000	**$ 171,028,714**	$ -	**$ 171,028,714**
Task 4: Project Administration and Statewide Cost Allocation Plan (SWCAP)	$ -	$ 677,872	$ -	$ -	**$ 677,872**	$ -	**$ 677,872**
PHASE 1 SUBTOTAL	**$ -**	**$ 474,672,185**	**$ 480,927,506**	**$ 52,100,000**	**$ 1,007,699,691**	**$ -**	**$ 1,007,699,691**
FIRST CONSTRUCTION SECTION							
Task 5: Program, Project and FCS Construction Management	$ 49,843,274	$ 299,797,950	$ 134,590,665	$ -	**$ 484,231,889**	$ 74,395,177	**$ 558,627,066**
Task 6: Real Property Acquisition and Environmental Mitigation	$ -	$ 627,612,072	$ 402,790,923	$ -	**$ 1,030,402,994**	$ 41,589,716	**$ 1,071,992,710**
Task7: Early Works	$ -	$ -	$ -	$ -	**$ -**	$ -	**$ -**
Task 8: Final Design and Construction Contract Work for the FCS	$ 723,120,806	$ 1,096,617,632	$ 1,728,486,028	$ -	**$ 3,548,224,466**	$ 1,218,374,420	**$ 4,766,598,886**
Task 9: Interim Use Project Reserve	$ 108,023,253	$ 53,856,392	$ 46,267,109	$ -	**$ 208,146,754**	$ -	**$ 208,146,754**
Task 10: Unallocated Contingency	$ 47,632,668	$ -	$ 20,414,000	$ -	**$ 68,046,668**	$ 357,815,511	**$ 425,862,179**
FIRST CONSTRUCTION SECTION SUBTOTAL	**$ 928,620,000**	**$ 2,077,884,046**	**$ 2,332,548,725**	**$ -**	**$ 5,339,052,771**	**$ 1,692,174,824**	**$ 7,031,227,595**
TOTAL	**$ 928,620,000**	**$ 2,552,556,231**	**$ 2,813,476,231**	**$ 52,100,000**	**$ 6,346,752,462**	**$ 1,692,174,824**	**$ 8,038,927,286**

Source: Submitted FCP Report of Jun-17 (Funding Contribution Plan) (pg. 14 of 67)
Note: Additional state funding sources column includes Cap and Trade revenues

Exhibit B-3. Funding Allocation for Phase 1 Project Development by Segment

Task Description	FY10 Grant Federal	ARRA Grant Federal	State	Local	Total
PHASE 1 PROJECT DEVELOPMENT					
PROJECT DEVELOPMENT					
RDP Phase I	$ -	$ 101,935,410	$ 84,698,677	$ -	$ **186,634,086**
Resource Agencies/Legal Costs Phase I	$ -	$ 29,779,605	$ 153,661,024	$ -	$ **183,440,629**
San Francisco - San Jose[1]	$ -	$ 23,510,447	$ 17,205,480	$ -	$ **40,715,927**
San Jose – Merced[1]	$ -	$ 59,392,261	$ 43,464,607	$ -	$ **102,856,868**
Merced - Fresno[1]	$ -	$ 25,605,812	$ 18,738,916	$ -	$ **44,344,728**
Fresno – Bakersfield[1]	$ -	$ 50,864,053	$ 37,223,471	$ -	$ **88,087,523**
Bakersfield – Palmdale[1]	$ -	$ 72,747,643	$ 53,238,380	$ -	$ **125,986,024**
Palmdale - Los Angeles[1]	$ -	$ 68,940,274	$ 50,452,061	$ -	$ **119,392,335**
Los Angeles - Anaheim[1]	$ -	$ 25,328,231	$ 18,535,776	$ -	$ **43,864,007**
Other Project Development Costs					
Project Administration and Indirect Costs	$ -	$ 677,872	$ -	$ -	$ **677,872**
Station Area Planning	$ -	$ 3,190,887	$ 3,709,113	$ 4,100,000	$ **11,000,000**
LAUS/Southern CA Improvements	$ -	$ 12,699,691	$ -	$ 48,000,000	$ **60,699,691**
SUBTOTAL	**$ -**	**$ 474,672,185**	**$ 480,927,506**	**$ 52,100,000**	**$ 1,007,699,691**

Source: Submitted FCP Report of Jun-17 (Funding Contribution Plan) (pg. 15 of 67)

Exhibit B-3 provides cost information for planning activities relating to the CVP; program-wide costs (RDP Phase 1 – Resource Agencies/Legal Costs Phase 1/Other Planning Costs) are not separated by geographical segment.

Development of Cost Estimates

The cost estimates summarized above in Exhibit B-1 are based on site-specific route alignments developed during Preliminary Engineering. The methodology for preparing estimates has been applied to both the CVP and the full Valley to Valley line of which the CVP is a part. Although the costs for improvements have been calculated and reviewed, they are subject to changes in economic conditions that occur over time and affect actual prices, either positively or negatively. The cost estimates are the product of two key items described below:

Quantities—This is the quantity of materials required to construct the project's key elements. The materials quantity depends greatly on the ground conditions where the project will be built, land use and availability, geotechnical conditions, community and stakeholder impacts, and environmental challenges requiring realignment or special designs. These factors are highly site-specific and subject to significant change during the environmental process and as communities participate in key decisions. The FRA established standard cost categories (SCCs) that must be included in a cost estimate for federally funded rail projects. The standard categories are as follows:

- 10 - Track structures and track
- 20 - Stations, terminals, intermodal
- 30 - Support facilities; yards, shops, administrative buildings
- 40 - Site work, ROW, and existing improvements
- 50 - Communications and signaling
- 60 - Electric traction
- 70 - Vehicles
- 80 - Professional services
- 90 - Unallocated contingency
- 100 - Finance charges

It should be noted that not all of the above cost categories apply to the CVP. The CVP does not include elements that would be required for passenger service; however, these elements would be added at the point of expansion to an initial operating section[3], which is the subject of Section D of this CVPFP.

Composite unit prices—These are the prices associated with labor, equipment and materials necessary to construct a discrete element of the high-speed rail system (i.e. elevated guideway, tunnel, station, systems component, etc.). These composite unit prices are measured in "route miles" or "each" and some such as stations or electrical substations may be quite complex and may include dozens of elements, each of which must be separately priced. The prices also must reflect

[3] Per the requirements of the grant agreements with FRA, if the Valley to Valley line is not possible to fund by the time construction in the Central Valley is complete, the Authority will work with CalSTA, Caltrans and the statewide rail partners to ensure use of the infrastructure, by appropriately planning the necessary actions. The decision of early use will be jointly made among FRA and the state of California.

the specific market for each product and material, such as the underlying commodity and labor costs, at the time anticipated for procurement. Composite unit prices for more than 300 separate cost items have been developed for the cost estimates.

C. Risks

A detailed assessment of the risks facing the Central Valley Project during the construction (such as capital cost overruns, revenue shortfalls, and maintenance cost overruns), along with proposed actions for mitigating or accommodating such risks (including assessment of additional funding sources available to compensate for potential capital financing shortfalls)

The Authority is committed to providing a successful high-speed rail system that meets and/or exceeds the expectations of elected officials, community stakeholders and the public at large. Accordingly, the Authority recognizes that effective management of risks is one way to significantly increase the chances of delivering a successful program and has developed a Risk Management Program for this purpose.

Risk Management and Project Controls Office

The Risk Management and Project Controls Office identifies potential risks and respective mitigation plans, and prioritizes actions. These items are documented in the Program Risk Register, which is continually updated, reviewed with management at stipulated intervals, and used as the basis of reporting.

The Risk Management Program's objectives are to:

- Codify the process by which the Authority responds to circumstances that could significantly delay or halt progress
- Increase transparency regarding challenges to project plans and objectives
- Capture project opportunities
- Satisfy legal and regulatory requirements and meet the needs and expectations of other stakeholders
- Rationalize allocation of resources including cost and schedule contingencies
- Assist in the preparation and implementation of risk mitigation plans for the identified program-wide risks

A revised Risk Management Plan (RMP) is planned for submission to FRA in December of 2017. The RMP defines the Authority's risk management policy, the processes to be used to execute the Risk Management Program effectively and the means to judge the quality of its deliverables. This RMP updated and formalized procedures for identifying, assessing, evaluating, documenting, and managing risks that may eventuate in the project. These include specific engineering, environmental, planning, ROW, procurement, construction, organizational, stakeholder, budget and schedule risk, and any other potential inabilities to deliver the required results.

In furtherance of the above objectives, the RMP outlines:

- Roles and responsibilities for risk management and addresses the process by which the Authority will identify and quantify project risks, implement and track risk response activities, and monitor and control risks throughout the duration of each project.
- The quantification of the effect of identified risks in financial terms.
- Which documents track identified risks and related mitigation steps.
- The schedule and plans for capital cost and support cost updates.
- The schedule and plans for reassessing reserves for potential claims and unknown risks, the incorporation of information related to risks identified and quantified through its risk assessment processes.
- The schedule and plans for integrating estimates for capital, support costs, and contingency reserves in required report.

The RMP also defines the standards for risk management deliverables that are part of the approval process:

- Deliverables are presented within a substantively complete and appropriate engineering or project management context.
- Deliverables are appropriately quantified, fully integrated, traceable and consistent, and compatible with findings or stated facts.
- Where risk management deliverables are qualitative in nature, they are properly structured and clearly identified with respect to authorship.
- Material analytic results of risk analysis are capable of independent analysis or reproduction using established methods and assumptions generating similar analytic results within an acceptable degree of imprecision or error.
- Funding agencies can assess whether it is appropriate to question the adequacy, accuracy and completeness of the third party data, information, modeling or analysis.

Appendix 4 includes a matrix of funding risks and top risks as requested by FRA.

2017 Risk Management Overview

The Risk Management and Project Controls Office has a direct reporting relationship established with the Board of Directors. This direct reporting enables daylighting to the risk management approach and encourages informed decisions.

The key risk areas that the Authority has identified and manages on an ongoing basis vary based on the individual section's design or construction phase. An overview of the most significant risks identified are below. (The Authority has adopted management strategies and mitigations to address these risks.)

- **Program Risks**
  - Financing and Funding
  - Legal and Litigation
  - Decline in Stakeholder Support
  - Ridership and Revenue

  - Operations and Maintenance
  - Capital Rehabilitation and Replacement Costs Differ from Forecasts
- **Construction Risks**
  - ROW Acquisition Delays
  - Environmental
  - Third Party Agreements
- **Technical Risks**
  - Engineering and Environmental
  - Alignments Passing through Energy Project Areas
  - Availability of Traction Power Substations to Supply Power for Operations

The Authority performed the pre-bid schedule and cost risk analyses for each of the construction packages. The identification of major risks and contingency recommendations in these pre-bid analyses were validated by the eventual contractor's' scopes and schedules. Decision making is based on a data-driven analysis approach. For example, the probabilistic analysis performed on the containment of railroad intrusion protection barrier walls provided the Authority, the FRA and adjacent railroads an additional mechanism to make informed decisions.

2017 Risk Management Trends

The Authority has identified various trends, both positive and negative, to the program cost and schedule milestones including, but not limited to, the following:

- The ROW parcel acquisition risk analysis performed on the ROW acquisition forecast identified potential delays to our schedule. Reviews highlighted the need for early identification and mitigation of actual ROW risks as well as other project risks. An alternative forecast was developed to reflect potential delays that were outside of the Authority's control and were more in line with recent trends.
- The CP 1-4 projects are experiencing cost risk pressures resulting from ROW acquisition costs and delays, intrusion protection and other requirements requested by the adjacent railroads, relocation of utilities, and the cost of agreements with third parties. The Authority is taking steps to mitigate these impacts, and is exploring other opportunities to reduce the cost risk pressures. This contingency drawdown curve will be revised following completion of the revised contingency analysis.

D. Costing Methodology

The Finance Plan(s) shall document projected capital and operating costs and revenues, and detail key assumptions and methodologies.

The 2016 Business Plan indicates that high-speed rail operations are planned to commence on the CVP upon completion of the Silicon Valley to Central Valley line which is consistent with the Authority's sequenced approach to completing Phase 1. The CVP is not contemplated to operate a revenue service upon initial completion; instead it will be used as a test track until it is connected to the rest of the Silicon Valley to Central Valley line in 2025. However, in case of a significant delay in the Silicon Valley to Central Valley construction progress, the Authority has prepared the *First Construction Package Utilization Plan and Concept of Operations* document which describes the Authority's plan for how a non-high-speed operating service would be implemented. Additional information is located on page 33 of this document in the Interim Use Reserves section. Therefore, selected information relating to the Silicon Valley to Central Valley line is included here only to provide greater context for the CVP and to demonstrate operational viability.

The 2016 Plan recognized that circumstances had changed over the past two years since the prior plan, requiring a new approach and revision to the previous IOS plan. Most significantly, there is a combination of existing funding sources that allows the Authority to deliver high-speed service within the next 10 years. It is the Authority's statutory and fiduciary responsibility to utilize available funding in the most efficient and productive manner, and focus those resources on a segment that can be built within the limits of available funding. To do otherwise would mean that the State would be left with a segment that would not be complete, could not meet the statutory requirements, and/or that would not generate private sector participation.

The Authority will be building the CVP with existing and allocated resources. This approach is consistent with the Authority principles and overarching objectives. Moving forward, the Authority will continue to evaluate new opportunities to fund, build, and bring into service the remaining segments as soon as possible.

Forecast Methodologies

This section describes methodologies used to produce the Authority's forecasts for capital costs, operating revenues, operating costs and capital maintenance (lifecycle) costs. The descriptions of these methodologies have been directly sourced from the 2016 Business Plan Section 5: Capital Cost Estimates, and Section 7: Forecasts and Estimates.

The forecasts for the Valley to Valley line, which includes the CVP, assume that operations running from San Jose to a station north of Bakersfield begin in 2025 (construction completed in 2024) and that operations on the entire Phase 1 system from San Francisco and Merced to Los Angeles and Anaheim begin in 2029.

Capital Cost Methodology and Refinements

Lessons learned from various construction package bids received by the Authority have been used to refine the Authority's cost estimating methodology. The best value bids for CP 1 through CP 4 were between 13 and 45 percent below engineer's estimates. The differences between the Authority estimates and final contractor bids include:

- Favorable economic conditions in the state: after a significant economic slow-down during the recession, the construction market began to gain momentum and is better positioned to support large projects.
- Healthy, competitive environment in the industry: There was strong interest in the industry to be part of the construction of the first high-speed rail system in the country. The prestige attached to the high-speed rail program contributes to industry interest and increases competition for the contracts. The Authority received three or more bidding consortia for each procurement which contributed to driving the price down.
- Construction contracts in the Central Valley do not incorporate a high level of risk: The first three construction contracts are civil packages with little integration and technological risk.
- Significant updates and revisions to the system construction cost estimates have been made based on new technical concepts and a better understanding of the private sector's approach to pricing the project.
- New technical concepts were introduced in the design of the system which have driven overall estimated construction costs down: The Authority's procurement process provides that the state will own the intellectual property of all bidders, whether they win or not; the Authority has applied some of the bidders' suggested innovations to subsequent analysis of construction costs.
- Overall system costs also have been refined based on a wide range of information from the industry including risk integrated pricing techniques: CP 1 and CP 2-3 resulted in a better understanding of the level of competitive pricing. Also, the Authority refined the schedules and the way construction can be operationalized. These ongoing project experiences provided valuable sources of information to refine and drive down costs for the rest of the system.

Operating Estimates

The Authority is planning to initiate high-speed rail operations upon completion of the Silicon Valley to Central Valley line. The 2016 Business Plan includes the Authority's business strategy to move to operations as quickly as possible; the 2016 Business Plan also includes information that supports revenue and cost forecasts. Should there be a scenario in which the Silicon Valley to Central Valley system is significantly delayed, the Authority has developed an option to introduce interim service to the CVP. The aforementioned *First Construction Package Utilization Plan and Concept of Operations* describes how a non-high-speed operating service could be implemented.

Ridership and revenue forecasts, and operating cost forecasts have been provided for the Silicon Valley to Central Valley line for context and to demonstrate how the Authority intends to put the CVP into operation. This strategy is further described in the 2016 Business Plan.

Updated 2016 Revenue Forecast Methodology

Ridership and revenue forecasts in the 2016 Business Plan reflect an enhanced travel demand model and changes to some key assumptions. The differences between the forecasts presented in the 2014 Business Plan and the forecasts presented in the 2016 Business Plan include:

- The 2016 Business Plan assumes a Phase 1 system that offers a one-seat ride extending to Anaheim; ridership and revenue forecasts in the 2014 Business Plan assumed a Phase 1 southern terminal in Los Angeles.
- New forecasts reflect an enhanced travel demand model that incorporates the latest available input data, new variables that better reflect travel behavior, and adjustments to the transit access network and station locations.

The above changes and model enhancements result in a Phase 1 ridership increase of approximately 25%, depending on the forecast year.

The ridership risk analysis considers new risk variables and was conducted separately for each model analysis year and system implementation assumption for Phase 1.

At the same time, many elements of the 2016 Business Plan ridership forecasts remain consistent with the 2014 Business Plan:

- High and low ridership forecasts were developed through a rigorous risk analysis that provided a forecast range and associated probabilities for each business plan scenario through Monte Carlo simulations. The risk analysis model includes a range of assumptions relating to various risk factors having the greatest combination of uncertainty and impact on the results.
- The ridership forecasts employ the same ramp-up methodology as the 2014 Business Plan, which assumes 40% ramp-up in year one, 55% ramp-up in year two, 70% ramp-up in year three, 85% ramp-up in year four and 100% ramp-up in year five. Separate ramp-up calculations are applied to each phase based on its assumed opening date. For more information on the ridership and revenue forecasts, please refer to the 2016 Business Plan Technical Supporting Document: Ridership and Revenue Forecasting.

- Farebox revenue forecasts in the 2016 Plan reflect the same enhanced model and revised assumptions used to estimate ridership. These changes have a similarly positive effect on estimated revenue for the Phase 1 system. As a result of the changes above, the Phase 1 revenue forecast increases by approximately 35% over the 2014 Business Plan revenue forecast, depending on the forecast year.
- Revenue forecasts in the 2016 Plan incorporate the same ramp-up methodology as ridership and as the 2014 Business Plan. The cash flow analysis assumes 1% additional ancillary revenue. The same risk analysis employed to provide a forecast range for ridership and associated probabilities also applies to revenue projections.

Updated 2016 Operations and Maintenance Forecast Methodology

The 2014 Business Plan operations and maintenance cost model was developed using guidance from the U.S. Department of Transportation Inspector General, and feedback from international high-speed rail subject matter experts at the International Union of Railways (UIC).

The 2016 Plan operations and maintenance cost estimates were derived by building on the 2014 cost model forecasts with minor adjustments based on new information and refined assumptions. All model assumption changes were reviewed and verified by Network Rail Consulting, the operator and maintainer of both the high-speed and conventional rail network infrastructure in the United Kingdom, to ensure international best practices are maintained in the forecasts.

The model adjustments had a minimal overall effect on operations and maintenance cost projections, but phasing changes have a more significant impact on operations and maintenance cost forecasts. The 2040 out-year forecasts in this 2016 Plan are within ~5 percent of the 2014 Business Plan projections, as the changes have minimal net effect on operations and maintenance costs for the Phase 1 system.

As in 2014, the Authority conducted a Monte Carlo simulation to understand the risks and uncertainties associated with the forecasts and created a forecast range with associated probabilities of occurrence. The high and low operations and maintenance cost forecasts in the exhibits below reflect the results of these Monte Carlo simulations.

Updated 2016 Lifecycle Cost Estimates

Lifecycle costs forecast the capital rehabilitation and replacement costs for the infrastructure and assets of the high-speed rail system. Differences in lifecycle costs between the 2014 Business Plan and the 2016 Plan reflect changes in capital cost estimates and minor adjustments to some asset lifespans. All model assumption changes were reviewed and verified by Network Rail, the operator and maintainer of both the high-speed and conventional rail network infrastructure in the United Kingdom, to ensure international best practices are maintained in the forecasts.

Similar to the operations and maintenance and revenue estimates, a Monte Carlo analysis was developed to evaluate a potential range of lifecycle cost forecasts shown in the exhibits below. The Monte Carlo methodology employed in 2014 applies also to the 2016 analysis. For more information on the lifecycle cost model, please refer to the 2016 Business Plan Technical Supporting Document: 50-Year Lifecycle Capital Cost Model Documentation.

2016 Updated Operating Forecast

As described above, the revenue and cost projections for the 2016 Plan are updated as a result of enhanced models and have undergone risk analyses to confirm their reliability.

A breakeven analysis has been conducted on the Valley to Valley line, which includes the CVP, and on the Phase 1 system. The breakeven analysis performed considers farebox revenue only.

The Monte Carlo risk analysis performed on the system breakeven provides state-of-the-art statistical support for the projections that the system will perform at or above its breakeven point and will not require an operating subsidy. The analysis results in a 32% probability that the Valley to Valley line will reach its breakeven point in the opening year but this probability increases quickly as the system ramps up. It is anticipated that the system begins to cover annual operating costs in Year 2 and recoups the first-year loss by Year 3 (in the Medium case).

The quantitative risk analysis also results in a 69% probability that the Valley to Valley line will reach its breakeven point over the initial ramp-up period and a greater than 99% probability that the Phase 1 project will do the same over the analysis period through 2060.

To mitigate the risk that the breakeven point may not be achieved as soon as projected, the Authority has several contracting strategies that will place on other parties the contractual responsibility to cover any early year losses based on revenues exceeding costs in later years. This approach is intended to ensure that there will not be a time that the Authority will have to provide a subsidy to an operator.

Exhibits D-1, D-2 and D-3 below show net cash flow from operations for the first five years of system operation during which time the Valley to Valley line ramps up to full operations. The high, medium and low scenarios illustrate that the system can be operationally self-sustaining and not require an operating subsidy during either the five-year ramp-up period, or as it reaches maturity. The high scenario is projected to have positive cash flow in the first year of operations. The low and medium scenarios are projected to reach an annual positive cash flow during year two and three, respectively.

Exhibit D-1. Silicon Valley to Central Valley Line Net Cash Flow from Operations - High Scenario

Summary of Net Cash Flow from First 5 Years of Operations: San Jose-North of Bakersfield (Silicon Valley to Central Valley Line) Through Phase 1, High Scenario (YOE$ in millions)					
	2025	2026	2027	2028	2029
Revenues (Including Farebox, Ancillary and Bus)	$360	$510	$668	$836	$2,222
Less: O&M	($331)	($377)	($424)	($473)	($1,196)
Net Cash Flow from Operations	**$28**	**$133**	**$245**	**$363**	**$1,026**

Source: California High-Speed Rail Program 2016 Business Plan, pg. 95

Exhibit D-2. Silicon Valley to Central Valley Line Net Cash Flow from Operations - Medium Scenario

Summary of Net Cash Flow from First 5 Years of Operations: San Jose-North of Bakersfield (Silicon Valley to Central Valley Line) Through Phase 1, Medium Scenario (YOE$ in millions)					
	2025	2026	2027	2028	2029
Revenues (Including Farebox, Ancillary and Bus)	$254	$ 361	$473	$592	$1,671
Less: O&M	($303)	($344)	($387)	($432)	($1,093)
Net Cash Flow from Operations	**($48)**	**$16**	**$86**	**$159**	**$578**

Source: California High-Speed Rail Program 2016 Business Plan, pg. 95

Exhibit D-3. Silicon Valley to Central Valley Line Net Cash Flow from Operations - Low Scenario

Summary of Net Cash Flow from First 5 Years of Operations: San Jose-North of Bakersfield (Silicon Valley to Central Valley Line) Through Phase 1, Low Scenario (YOE$ in millions)					
	2025	2026	2027	2028	2029
Revenues (Including Farebox, Ancillary and Bus)	$199	$281	$369	$462	$1,307
Less: O&M	($290)	($330)	($370)	($414)	($1,047)
Net Cash Flow from Operations	**($91)**	**($48)**	**($ 1)**	**$48**	**$259**

Source: California High-Speed Rail Program 2016 Business Plan, pg. 95

Full detailed cash flows for each scenario are located at:
http://hsr.ca.gov/docs/about/business_plans/2016_Business_Plan_High_Medium_Low_Cash_Flows.pdf

E. Interim Use Reserves

The Finance Plan(s) shall address the financial soundness of the reserve scenario in the event the state of California pursues early use of the new infrastructure.

The grant agreements contain provisions for an Interim Use Project Reserve (Task 9). This allocation does not alter or affect the overall federal share associated with funding this project. The management and use of the reserve funding is described in the draft project reserve planning documents was previously submitted to the FRA. Use of reserve funds is dependent upon FRA approval. The reserve was established to cover costs that would be incurred as part of early use that would not be part of the high-speed rail federally funded CVP. These elements could include track connections and associated communications and signaling, interim stations, operations control, and maintenance.

The Interim Use Project Reserve was originally 100% federally funded with no state match attached to this allocation. However, the reserve fund allocation underwent a restructuring in the ARRA Amendment 6 process and included permission for the Authority to use $53.9M of reserve funds to purchase radio spectrum – a communications system for the entire system. The amendment process also included a contribution of $46.3M in state funds to the Interim Use Project Reserve allocation. Currently, the Interim Use Project Reserve balance is $154M ($108M and $46M in FY10 and state funds, respectively).

The Interim Use Project Reserve task is broken into two subtasks: Task 9.1 Project Reserves and Task 9.2 Interim Use Reserve. Task 9.1 is reserved for budgeted, but unallocated, costs over and above unallocated contingency. Task 9.2 is for infrastructure elements that may be necessary to initiate independent utility on the CVP (generally between Madera and northern Kern County).

Interim Use Operations

FRA anticipates that Interim Use Project Reserve funds could be needed and used to establish early intercity rail operations on the CVP if it appears high-speed rail revenue service, on a longer operational segment that includes the CVP, will be significantly delayed. Expenditure of funds in this allocation is subject to FRA approval and may only be used for the construction infrastructure necessary to initiate early operations on the CVP funded under the grant. The amount established in the Interim Use Reserve Fund is an estimate of the maximum funds required to implement early service operations including track, signal and communications elements, stations, operations control, and a limited maintenance facility. If such reallocation occurs, the Authority will be obligated to provide the matching contribution for the reallocated Interim Reserve Fund.

Prior to the release of RFPs or bids for track, signals, or other system elements (i.e., beyond civil and structural infrastructure), if FRA determines that there will be a significant delay in completing the investments needed to begin initial high speed rail revenue service on an initial operating segment that includes the CVP, FRA may direct the Authority to use the Interim Use Reserve Funds to build any required capital investments necessary for an interim service alternative that will ensure operations over the CVP for the minimum term of 20 years. Upon such an FRA determination and prior to letting any contracts necessary to implement the FRA-approved interim service alternative, the Authority shall ensure operating and financial commitments are secured by the appropriate governmental agencies and/or private entities that would construct and operate such early service alternatives.

Information in the *First Construction Package Utilization Plan and Concept of Operations* (updated in October 2016) describes the preferred interim use alternative, known as Alternative One – Electrified Passenger Service.

Alternative One – Electrified Passenger Service

This selected alternative will provide an electrified service that utilizes the high-speed rail system/tracks and rolling stock. Passengers will access the services at an intermodal station at Madera Acres or via intercity buses at a temporary station north of Bakersfield. Seven round trips a day (12 trains) would be timed to connect with the existing San Joaquin service at the new Madera Acres transfer station where passengers would be able to use their Amtrak tickets to board high-speed trains.

Four train sets will be required and will be provided via the Authority's forthcoming equipment procurement. A small maintenance facility, for both infrastructure and rolling stock, also would be provided. The rolling stock facility includes two 1,450-foot storage tracks with inspection pits, access for toilet servicing, and cleaning and pantograph inspections. Additionally, a warehouse for storing rolling stock material and spare parts is also required. The maintenance of infrastructure forces will require a facility that encompasses six yard tracks and one siding track (1,600'), occupying approximately 28 acres including:

- Approximately 8,150 feet of yard track capacity
- Shop facilities for the following activities: MOI inventory, infrastructure and equipment
- Maintenance/repair stockpile areas for ballast and other bulk materials
- Secured stockpile areas for non-bulk materials
- Rail side unloading dock and CWR train storage (1,600')
- Rail-borne equipment and locomotive storage tracks
- Dispatching facility will be needed

All requirements needed for Alternative 1, including trainsets, trainset maintenance, trainset maintenance facilities and infrastructure maintenance with corresponding infrastructure maintenance facilities and dispatch requirements, will be incorporated into future procurement documents and will be provided by the two contractors. The selected alternative will be administered at the direction of CalSTA. The estimated start date of service is by 2023. The estimated construction cost for the selected alternative is $58.4M.

All other alternatives previously considered by the Authority are no longer under consideration.

Appendix 1 – Prop 1A

"Safe, Reliable High-Speed Passenger Train Bond Act for the 21st Century"

(AB 3034 – Chapter 267 – Statutes of 2008)

http://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=200720080AB3034

Appendix 2 – California State Budget Process

State Budget Process Overview

The Governor's budget is the result of a process that begins more than one year before the budget becomes law. Capital Outlay Budget Change Proposals (COBCPs) are documents that propose to modify or change funding levels, existing level of service, propose new programs or delete existing programs. These documents are prepared by agencies/departments and submitted to the DOF. This process starts in July with Budget Concept Statements, which are internal documents utilized to gather data, document research and present requests in a manner consistent with the COBCP format. The concepts are then evaluated by departmental management and either approved or denied for submission to DOF for consideration. The process concludes in September when all requests are submitted to DOF for review and determination of requests. Approved requests are incorporated into the Governor's budget.

The California Constitution requires the Governor to submit a budget to the Legislature by January 10 which includes an explanatory message and provides a budget for the ensuing year with itemized expenditures and revenues. By constitutional requirement, the Governor's budget must be accompanied by a Budget Bill itemizing recommended expenditures which shall be introduced in each house of the Legislature. The Constitution also requires that the Legislature pass the bill by June 15. The Senate Budget and Fiscal Review Committee and the Assembly Budget Committee are the two committees that hear the Budget Bills. These hearings generally begin in late February soon after the Legislative Analyst issues the Analysis of the Budget Bill.

The DOF proposes adjustments to the Governor's budget through Finance Letters in the spring. By statute, the DOF is required to give the Legislature all proposed adjustments, other than Capital Outlay and May Revision, to the Governor's budget by April 1. Capital Outlay adjustments are due by May 1. The traditional May Revision adjustments are due by May 14, and consist of an update of general fund revenues and changes in expenditures for school funding requirements pursuant to Prop 98, caseload, enrollment, or population. The Legislature typically waits for the May Revision update before final budget decisions are made on major programs such as education, corrections, and health and human services.

When the Budget Bill receives a majority vote of each house, it is passed on to the Governor. The Constitution allows the Governor to reduce or eliminate an item of appropriation.

There are generally budget changes proposed by the Governor or the Legislature which necessitate changes to existing law in order to implement the budget changes. If this is the case, separate bills are introduced to implement the change. These budget implementation bills are called trailer bills and are heard concurrently with the Budget Bill. By law, all proposed statutory changes necessary to implement the Governor's budget are due to the Legislature by February 1.

The Budget Act is the primary source for appropriations. Continuous statutory appropriations and special legislation also provide expenditure authority.

Departments have the primary responsibility to operate within budgeted levels and to comply with any restrictions or limitations enacted by the Legislature. Further, the general expectation is that State agencies comply with the legislative intent.

Process for Budget Augmentation

Although the general expectation is to conform to the enacted budget, the Legislature has recognized a need to establish some flexibility to adjust budgets. For example, the statutes provide a continuous appropriation for allocations by the Director of Finance to meet expenditures resulting from natural disasters for any emergency proclaimed by the Governor. The Legislature has also provided provisions in the Budget Act to allow for budget adjustments. Most of this authority requires Director of Finance approval; many require a formal notice to the Legislature and a waiting period to provide the opportunity for legislative review and response before final approval. Budget Act provisions to allow adjustments include authorizations for:

- Changes to federal funding levels
- Deficiencies
- Changes to reimbursements
- Intra-item transfers

The DOF approves budget changes using Budget Revisions, Executive Orders and Letters. These changes are transmitted to the SCO, which maintains the statewide appropriation control accounts.

The Governor has certain powers to adjust expenditures. Although these powers do not permit for adjustment of appropriations, the expenditure plan may be changed. For example, past Governors have issued Executive Orders to implement hiring and equipment purchase freezes and delayed capital expenditures. Under emergency conditions, the Governor is also authorized to direct State resources to meet emergency needs.

Listed below are mechanisms, including descriptions and additional provisions, departments can utilize to augment their appropriations.

Section 26.00 – Intra-Schedule Transfers

Section 26.00 authorizes the transfer of funds from one line to another within the schedule of an appropriation. The amount of the transfer is limited in provisions (c) 1-4. However, provision (e) provides that transfers exceeding these limits may be authorized, but not sooner than 30 days after notification in writing of the necessity to exceed the limitations is provided to the Legislature. The following also applies to Section 26.00 adjustments:

- Intra-schedule transfers for capital outlay purposes are prohibited, regardless of whether budgeted in a capital outlay or local assistance appropriation.
- Intra-schedule transfers are allowed for support and local assistance type purposes.
- Transfers may not establish or eliminate a program, project, or function.
- Any transfer in excess of $200K requires advance reporting to the Legislature.

DOF is required to report all budget adjustments authorized pursuant to Section 26.00 annually at the end of the fiscal year to the Legislature.

Section 28.00 – Augmentation for Receipt of Non-State Funds

Section 28.00 authorizes DOF to approve augmentations for the expenditure of unanticipated funds received from the federal or local governments or any other non-state entity. For purposes of this

Section, unanticipated means those instances when receipt of the funds could not reasonably have been foreseen at the time of the development of the Governor's budget or the submission of Spring Finance Letters for inclusion in the budget for the ensuing fiscal year. DOF may also reduce any program, project, or function if funds will not be received as anticipated.

Section 28.00 does not provide an appropriation. Augmentations approved pursuant to Section 28.00 involve adjustments of moneys which already have been appropriated.

To receive consideration for an augmentation, departments must either notify DOF within 45 days of receiving official notification of additional funds or provide written explanation to DOF why the 45-day notification requirement could not be met. In either case, the department must provide DOF a copy of the official notice of fund availability.

Regardless of the source of the additional funding, any augmentation that exceeds either $400K or 10 percent of the amount available for expenditure in the affected program, project, or function must be reported to the Legislature. The notification to the Legislature must include the date the department received official notification of additional funds and a copy of the department's written explanation of delayed notification to DOF if the 45-day requirement could not be met.

Section 28.00 augmentations must also meet the following four criteria, and this information must be included in the notification to the Legislature:

- The funds will be expended for a purpose that is consistent with state law.
- The funds are made available to the state under conditions permitting their use only for a specified purpose, and the additional expenditure proposed under this section would apply to that specified funding purpose.
- Acceptance of the funds does not impose any requirement to commit or expend new state funds.
- The need exists to expend the additional funding during the current fiscal year.

Section 28.50 – Augmentation for the Receipt of State Funds

Section 28.50 authorizes DOF to approve a state agency's expenditure of additional reimbursements received from another state agency. DOF may also reduce any reimbursement amount and the related expenditure authority if anticipated reimbursements will not be received.

DOF approval of the expenditure of such reimbursements that exceeds $200K must be reported to the Legislature.

If the funding for the agency providing the reimbursements has been approved by the Legislature or reported to the Legislature in accordance with other Section requirements, the DOF approval of the receipt and expenditure of the reimbursements will be considered a technical budget adjustment. Reporting will not be required pursuant to Section 1.50.

However, any new activity, program, or issues considered "sensitive" (as specified in the General Reporting guidelines) that will be funded by additional reimbursements should be reported. The use of Section 1.50 to make technical adjustments will not be used in these instances.

Appendix 3 – Extract of SB 862 and AB 398 Cap and Trade Program Language

SB 862

SB 862 added Health and Safety Code Section 39719 and 39719.1 to state law that increase funding of the High-Speed Rail Program. Key provisions appear below.

SEC. 7. Section 39719 is Added to the Health and Safety Code, to Read:

39719. (a) The Legislature shall appropriate the annual proceeds of the fund for the purpose of reducing greenhouse gas emissions in this state in accordance with the requirements of Section 39712.

(b) To carry out a portion of the requirements of subdivision (a), annual proceeds are continuously appropriated for the following:

(1) Beginning in the FY2015–16, and notwithstanding Section 13340 of the Government Code, 35 percent of annual proceeds are continuously appropriated, without regard to fiscal years, for transit, affordable housing, and sustainable communities programs as follows:

(A) Ten percent of the annual proceeds of the fund is hereby continuously appropriated to the Transportation Agency for the Transit and Intercity Rail Capital Program created by Part 2 (commencing with Section 75220) of Division 44 of the Public Resources Code.

(B) Five percent of the annual proceeds of the fund is hereby continuously appropriated to the Low Carbon Transit Operations Program created by Part 3 (commencing with Section 75230) of Division 44 of the Public Resources Code. Funds shall be allocated by the Controller, according to requirements of the program, and pursuant to the distribution formula in subdivision (b) or (c) of Section 99312 of, and Sections 99313 and 99314 of, the Public Utilities Code.

(C) Twenty percent of the annual proceeds of the fund is hereby continuously appropriated to the Strategic Growth Council for the Affordable Housing and Sustainable Communities Program created by Part 1 (commencing with Section 75200) of Division 44 of the Public Resources Code. Of the amount appropriated in this subparagraph, no less than 10 percent of the annual proceeds, shall be expended for affordable housing, consistent with the provisions of that program.

(2) Beginning in the FY2015/16, notwithstanding Section 13340 of the Government Code, 25 percent of the annual proceeds of the fund is hereby continuously appropriated to the High-Speed Rail Authority for the following components of the initial operating segment and Phase I Blended System as described in the 2012 business plan adopted pursuant to Section 185033 of the Public Utilities Code:

(A) Acquisition and construction costs of the project.

(B) Environmental review and design costs of the project.

(C) Other capital costs of the project.

(D) Repayment of any loans made to the authority to fund the project.

(c) In determining the amount of annual proceeds of the fund for purposes of the calculation in subdivision (b), the funds subject to Section 39719.1 shall not be included.

SEC. 8. Section 39719.1 is Added to the Health and Safety Code, to Read:

39719.1. (a) Of the amount loaned from the fund to the General Fund pursuant to Item 3900-011-3228 of Section 2.00 of the Budget Act of 2013, four hundred million dollars ($400,000,000) shall be available to the High-Speed Rail Authority pursuant to subdivision (b).

(b) The portion of the loan from the fund to the General Fund described in subdivision (a) shall be repaid to the fund as necessary based on the financial needs of the high-speed rail project. Beginning in the FY2015/16, and in order to carry out the goals of the fund in accordance with the requirements of Section 39712, the amounts of all the loan repayments, notwithstanding Section 13340 of the Government Code, are continuously appropriated from the fund to the High-Speed Rail Authority for the following components of the initial operating segment and Phase I Blended System as described in the 2012 business plan adopted pursuant to Section 185033 of the Public Utilities Code:

(1) Acquisition and construction costs of the project.

(2) Environmental review and design costs of the project.

(3) Other capital costs of the project

(4) Repayment of any loans made to the authority to fund the project.

AB 398 Extension:

AB 398 (Garcia), signed into law on July 25, 2017, provided an extension to the Cap and Trade program through December 31, 2030.

Appendix 4 – Summary of Funding Sources, Appropriations, Risks, and Risk Mitigations

American Recovery and Reinvestment Act (ARRA)

Appropriations

ARRA funding has been provided through Federal Grant FR-HSR-0009-10-01-00 and has been used for pre-construction and construction costs on the Central Valley Project. Funds were appropriated through SB1029, passed by the California State Legislature and signed by the Governor, authorizing expenditure of federal grant funding.

Risks	Risk Mitigations
The ARRA funding appropriation sunsets in September17.	ARRA funds expired on September 30, 2017. The Delphi system shut down on September 11, 2017, and no further processing of drawdowns will occur. The total amount of ARRA expenditures was net of amounts the Authority was in process of returning to FRA.
Change orders or other unforeseen events may result in higher than anticipated capital costs	The Authority has initiated a Business Oversight Committee and Project Oversight Committee, to provide oversight to mitigate cost overruns. Additionally, it has strengthened its management system to oversee the delivery of construction contracts and to monitor contractor's performance.
Prop 1A matching contributions become unavailable	Prop 1A bond proceeds have already been received by the Authority. If future Prop 1A funding becomes unavailable as contributory matching funds for the ARRA funding the Authority is able to utilize appropriated Cap and Trade funds in its place - see *Cap and Trade Revenues* in Section A of this CVPFP.

FY10 Funding

Appropriations

Funding has been provided through Federal Grant FR-HSR-01118-12-01-01 and is being used for construction activities on the Central Valley Project. These funds were also appropriated under SB 1029, state budget legislation passed by the California State Legislature and signed by the Governor, authorizing expenditure of federal grant funding in the amount of $928.6M for construction of the CVP.

Risks	Risk Mitigations
Other revenues expire or become unavailable, rendering the remaining FY2010 funding insufficient	As described in the funding sections, herein, the Authority has agreed with FRA to accelerate the use of ARRA funds under the tapered match plan to enable sun-setting funds to be expended first. This has allowed the Authority to expend the ARRA funds and make substantial progress on delivery of the CVP. The Authority has already sold over $1 billion in bonds and begun to use Prop 1A funds to match the ARRA funds. On top of that, the state has secured a back-up source of state funding in the form of Cap and Trade Revenues should Prop

Risks	Risk Mitigations
	1A become unavailable for any reason.

Prop 1A

Appropriations

Prop 1A was passed by voters in 2008, creating a $9B dedicated source of funding for California High-Speed Rail. The California Legislature Appropriated Prop 1A bond proceeds in the amounts of $2.6B for construction and $377M for Project Development costs.

Risks	Risk Mitigations
Legal action further delays availability of funds	The Authority continues to successfully overcome legal challenges to the use of Prop 1A funds including in recent findings that have allowed the Authority to sell over $1 billion in Prop 1A bonds to continue construction and match the federal funds. Cap and Trade funding may be used as a substitution for Prop 1A funds, if necessary.
Cap and Trade funds are allocated to other parts of the system, providing no back-stop to Prop 1A funds	The Authority assesses its funding requirements on a periodic basis and assigns funds to projects as it deems necessary. With the continuous appropriation of Cap and Trade funds, the Authority gets an infusion of funds each quarter increasing its ability to fund various elements of the program at the same time.
ARRA federal funding expiration	ARRA funds expired on September 30, 2017. The Delphi system shut down on September 11, 2017, and no further processing of drawdowns will occur. The total amount of ARRA expenditures was net of amounts the Authority was in process of returning to FRA.

Cap and Trade

Appropriations

The Cap and Trade program was established through AB 32. Appropriation of Cap and Trade Revenues was approved in the FY2014/15 budget cycle, through SB 862, which continuously appropriated 25 percent of Cap and Trade revenues to the Authority.

Risks	Risk Mitigations
Cap and Trade Auction proceeds may be lower than what the Authority has assumed for planning purposes	The Authority continues to monitor Cap and Trade auction results and actively manages its commitments of Cap and Trade funds based on conservative estimates. To date the Authority has received the following one-time Cap and Trade appropriations on top of the continuous appropriations from quarterly Cap and Trade auction proceeds. • $250M, one-time appropriation in CA Budget Act of 2014 • $400M, one-time appropriation in CA Budget Act of 2014 on loan to the General Fund Furthermore, AB 398 (Garcia), signed into law on July 25, 2017, provided an extension to the Cap and Trade program through December 31, 2030. The first quarterly Cap & Trade auction following this bill has resulted in $161M in proceeds for the Authority.
The Authority commits Cap and Trade funds to other parts of the system making them unavailable to back-stop Prop 1A	Prop 1A funds are currently being used for CVP construction expenditures, with Cap and Trade serving as a backstop. The Authority will assess its funding requirements on a periodic basis and assign funds to projects as it deems necessary.

Local Funding

Appropriations

Local match of $52.1M has been designated for specific system-wide pre-construction costs.

Risks	Risk Mitigations
Funding is not provided by local entities	No local funding will be used for construction of the CVP. For use in pre-construction expenditures the Authority is actively engaged in negotiating funding agreements with Southern California agencies. Further, the Authority has successfully negotiated station area planning grants to provide part of this match.

Appendix 5 – Top Risks

California High-Speed Rail Authority	Date	Rating	
Risk Mitigation Actions	June 30, 2017	Current	Prior
		3	5

Risk ID	Description
1004	Delays to acquisition of ROW parcels for CP 1-4 contracts as committed in the DB contracts ROW Acquisition Plans may impact the construction schedule. Further, delays in construction schedule can lead to claims.
Discipline	
ROW	

Risk Background Information: The Authority owns the risk of delivering ROW to DB Contractor on time. If the ROW acquisition has not progressed as committed in the ROW Acquisition Plan for Design Build Contracts, the Authority may incur delay claims. The Authority has partnered with the contractor to identify early start locations and focus delivery of those parcels. Progress is being made to achieve this commitment and should help mitigate the potential delay claims.

Risk Mitigation Actions

#	Action Description	Deliverable	Due Date
1	Resolve bottlenecks and staffing issues and perform continuous monitoring to resolve delivery bottlenecks.	Hiring of staff	Ongoing
2	Authority has augmented staffing, reallocated administrative duties to free up technical resources and worked with partners to establish priorities.		Complete
3	Partner with the contractor to potentially re-sequence or accelerate work as necessary. Update: For CP 4 project, secured Permissions to Enter (PTE) to over 100 parcels in parallel with the appraisal mapping to allow geotech investigations and mitigate delays to design.		In Progress
4	Working with Department of Finance and Department of General Services to implement administrative delegations to streamline the process.		In Progress
5			

Other Potential Mitigation Actions

The ROW division is currently clearing additional widths along corridors to reduce secondary ROW acquisitions from same owners resulting from design changes / refinements.

History Log

In 2016, the Authority settled ROW delay claims relating to CP1 contract for delays claims through December 31, 2015.

California High-Speed Rail Authority	Date	Rating	
Risk Mitigation Actions	June 30, 2017	Current	Prior
		3	5

Risk ID	Description
1003	Delays in obtaining all agreements with railroads for Central Valley due to extended negotiations periods.
Discipline	
Political Government External	

Risk Background Information: Many interface agreements and integration risks associated with UPRR and BNSF and other railroad agencies including risks with design, construction methodologies, operational issues related to the joint use of ROW, stations and ancillary facilities, integration with rail infrastructure and operating companies. The Authority is responsible for providing the Contractors with executed versions of any Railroad Agreements that were not executed and provided to the Contractor prior to the Proposal Deadline.

Risk Mitigation Actions

#	Action Description	Deliverable	Due Date
1	With BNSF, identify critical ROW areas and Establish the agreements a) Purchase & Sale b) Relocation & Construction including I&I provisions, c) Master & Joint Corridor agreement, d) Grade Separation.	Agreements	Items a-c completed for CP 1
2	With UPRR, identify critical ROW areas and establish the agreements a) Engineering, Construction & Maintenance, b) Insurance & Indemnification, c) Purchase & Sale, d) Grade Separation.	Agreements	Completed a, b, c in signed, template developed for 4.
3	For CP 2-3 and CP 4 projects, establish remaining agreements a) Purchase & Sale b) Grade Separation, c) Relocation and Construction including I&I provisions.	Agreements	In progress templates developed for CP 2-3 and CP 4
4	Sign remaining agreements (grade separation agreements) with railroad when DB contractors complete 100% design of railroad crossings at various locations.	Agreements / 100% Design	Ongoing
5			

Other Potential Mitigation Actions

History Log

Templates for all agreements have been developed. BNSF has requested to sign the agreements at the 100% design level of BNSF realignments and intrusion protection requirements.

California High-Speed Rail Authority	Date	Rating	
Risk Mitigation Actions	June 30, 2017	Current	Prior
		3	5

Risk ID	Description
1022	Increase in capital costs due to potential for underestimated Environmental Mitigation costs in the absence of a program-wide policy on managing mitigation.
Discipline	
Environmental	

Risk Background Information: Lack of a program-wide policy for managing and funding mitigation measures including wetlands, and soil remediation, cultural resources and other mitigation measures currently negotiated either with resource agencies or local communities. While a 3% of the construction cost is now used as an assumption for estimating mitigation costs, it may be too low.

Risk Mitigation Actions

#	Action Description	Deliverable	Due Date
1	Assess mitigation measures used in MF and FB EIR/EIS and experience with CP 1 to revise and clarify mitigation measures and impact avoidance and minimization features.		9.30.2016 Complete
2	Revise estimate at the program level using mitigation measures information. Update: the team has developed regional biological resources cost estimates for Valley-to-Valley mitigation requirements and performed 3rd party review.	Revised Baseline Estimate	In Progress
3	Update WBS dictionary and ensure WBS dictionary environmental scope excludes planning betterments.	WBS Dictionary	Complete
4	Develop a policy for natural resource compensatory mitigation.	Policy	Complete
5			

Other Potential Mitigation Actions

History Log

At the project/contract level, a line item is included in DB price proposal for environmental mitigation.

California High-Speed Rail Authority	Date	Rating	
Risk Mitigation Actions	June 30, 2017	Current	Prior
		4	

Risk ID	Description
1236	Delay or increase costs to the HSR program because of non-compliance with mitigation and permitting commitments.
Discipline	
Environmental	

Risk Background Information: The language in DB contract documents is neither specific regarding clearly articulated performance standards nor do they provide sufficient enforcement of compliance requirements. If the DB contractor is not compliant with environmental commitments, it could weaken the Authority's reputation with regulatory agencies and may delay permitting activities in other sections. Worst case, lack of compliance could result in a regulatory agency issuing a stop consultation and work order on the project, puts HSR program in jeopardy to lawsuits and/or affect EIR/EIS consultation.

Risk Mitigation Actions

#	Action Description	Deliverable	Due Date
1	Engage with FRA to communicate potential non-compliance incidents with Federal & State Agencies and Native American Tribes.		Ongoing
2	Organize an ongoing (quarterly) workshop with contractor to discuss challenges faced with contract environmental compliance, CEQA/NEPA process and permit issuance process.	Quarterly meeting minutes	Ongoing
3	Incorporate 'lessons learned' on earlier DB contracts with future ones.	Lessons Learned document	12.31.2017 In Progress
4	Work with construction staff on improvements to compliance actions and tracking, revise EMMA to include storm-water construction permitting, and make EMMA mobile.	EMMA Mobile	6/30/3017 Complete
5	Strengthen construction contract compliance or reassign environmental compliance responsibility from construction team to environmental team to better manage compliance violations.		In Progress

Other Potential Mitigation Actions

Continue making improvements to EMMA.

History Log

Developed and implemented an environmental compliance program.

California High-Speed Rail Authority	Date	Rating	
Risk Mitigation Actions	June 30, 2017	Current	Prior
		5	5

Risk ID	Description
1032	Failure to obtain financing for the project, either public or private financing or both.
Discipline	
Financial	

Risk Background Information: The ability to finance the project is largely dependent upon the revenue source used for repayment. For project financing, this is normally net project revenue (revenue less operating costs) but can also include appropriated funding. The Authority continues to evaluate the use of innovative delivery models that leverage private finance to deliver the project, has conducted informal market testing/sounding, has evaluated the use of a range of financing structures as an additional form of financing, and is considering ancillary sources of revenue to support project revenue. The Authority continues to work with stakeholders to gain support for the project.

Risk Mitigation Actions

#	Action Description	Deliverable	Due Date
1	The near-term funding risk is mitigated by the identification of all necessary sources for the CVP construction cost. The scope of first construction section will be managed to ensure that the CVP is completed within the current funding appropriation.		2.6.2014 Complete
2	Continue to reach out to the private sector to test appetite and refine procurement / commercial approach.	RFEI process	Complete - RFEI process concluded, inputs incorporated in 2016 Business plan
3	Continue to evaluate alternative delivery models and commercial mechanisms that leverage private investment.		Ongoing
4	Continue to work with federal partners, members of Congress and state legislators, the USDOT and other stakeholders to maintain support for funding and financing programs.		Ongoing
5			

Other Potential Mitigation Actions

The near-term funding risk is mitigated by the identification of all necessary sources for the capital cost. The ultimate scope of first construction section will be managed to ensure that CVP of the IOS is completed within the current funding appropriation.

History Log

California High-Speed Rail Authority	Date	Rating	
Risk Mitigation Actions	June 30, 2017	Current	Prior
		5	5

Risk ID	Description
1189	Increased capital costs due to railroads request for intrusion protection and/or detection measures to provide clearance from their ROW property line.
Discipline	
Engineering / Technical	

Risk Background Information: BNSF have requested intrusion protection measures of 102-ft from their property line rather than a 102-ft from their track center-line, as specified in CP 2-3 contract documents, to preserve ability to construct additional tracks within the full extent of their existing ROW. At the current 102-ft spacing requirement between HSR and BNSF, any additional BNSF track in that zone would require the consideration of intrusion protection measures. Depending on how the barrier design is finalized, there could be significant cost risk in construction of barriers. The Authority is looking at the mixture between ditch/berm/barriers to ensure safety at appropriate cost levels.

Risk Mitigation Actions

#	Action Description	Deliverable	Due Date
1	Develop white paper for BNSF on strategies for use of earthen berms as intrusion protection.	White Paper	2.28.2016 Complete
2	Negotiate agreements with BNSF to address requirement of 250-ft clearance from ROW and associated intrusion protection/detection measures	Relocation and Construction agreement with BNSF	12.31.2016 Complete for CP 1
3	Intrusion Protection barrier - draft Intrusion Barrier Assessment report recommending design forces to FRA, Volpe, UPRR and BNSF, received comments and issue final report. Update: HSR issued an amendment to the barrier assessment report and submitted to BNSF and FRA for review.	Design standards for barrier wall	In Progress; Received comments from BNSF on amendment to intrusion barrier assessment report; Working on updates.
4	Refine alternatives for intrusion barriers and incorporate recommendations on the design standards for barrier wall as part of the railroad agreements.	60% Design	In Progress
5	Reviewing various strategies that could allow significant reductions in quantity of barrier wall in all three contracts and reviewing the updated concepts with railroads.		In Progress

Other Potential Mitigation Actions

Authority is working cooperatively with railroads to identify engineering solutions for mitigating the adjacency issues within CP 1 and CP 2-3.

History Log

Draft intrusion detection requirements have been negotiated, the requirements for CP 1, CP 2-3 and CP 4 contracts will be incorporated in CP 5 contract. Working with FRA on finalizing the recommended design standards for intrusion protection requirements.

California High-Speed Rail Authority	Date	Rating	
Risk Mitigation Actions	June 30, 2017	Current	Prior
		3	5

Risk ID	Description
1194	Delays in testing, commissioning and start of HSR operations due to unavailability of traction power substations to supply power for HSR operations.
Discipline	
Political Government External	

Risk Background Information: New utility construction or transmission network upgrade required for PG&E and SCE traction power substations. Environmental clearance is ongoing but not complete. Risk is that there is a long-term planning, permitting and engineering process for each substation connections to the high-voltage grades (up to 6 years) which could impact testing, commissioning and start of operations. Risk is low as it would not affect V2V implementation schedule

Risk Mitigation Actions

#	Action Description	Deliverable	Due Date
1	Continue discussions with utility agencies (PG&E, SCE, and CPUC) to start planning for additional network upgrades.		Ongoing
2	Negotiate scope with utility agencies for next contract to perform impact analysis study, design, engineering, environmental and construction permits.	Reimbursable agreements	Ongoing
3	Complete environmental clearances. The Authority to resolve disagreement between FRA and AG office on whether to clear sites 8-12.		10.30.17 Ongoing
4			
5			

Other Potential Mitigation Actions

History Log

Reassessed electric loads required for testing and commissioning and for initial operations (i.e. 2 trains per hour per direction). This load is 10% of theoretical max load (12 trains /hour/direction) with 9 trains as doable limits) initially provided to PG&E and SCE. PG&E is reassessing, but first review is that minimal PG&E reinforcement required to support 2 trains /hour/direction.

California High-Speed Rail Authority	Date	Rating	
Risk Mitigation Actions	June 30, 2017	Current	Prior
		3	5

Risk ID	Description
1211	Authority's inability to manage funding streams due to lack of an in-house financial system within the Authority that meets either existing or anticipated needs.
Discipline	
Program Management and Controls	

Risk Background Information: The lack of in-house financial system has and likely will continue to result in delays to: 1) negative impacts to funding opportunities (principally delays), 2) delays to the planning, designing, and building of the high-speed rail system, and 3) the addition of an unnecessary level of complexity when managing and overseeing the Regional Consultant contracts, the Federal ARRA grant, and Federal drawdowns for payments.

Risk Mitigation Actions

#	Action Description	Deliverable	Due Date
1	Confirm business specific financial management system needs to be addressed outside of FI$Cal. Define financial management system scope, integration points and overall system functionality.	Study	Complete
2	Acquire and implement in-house financial system sufficient to manage multiple streams of federal funding, state bond funding, and anticipated private sector/investor funding as well as provide accurate and timely reports, forecasts, and estimates.	Financial System	On Hold
3			
4			
5			

Other Potential Mitigation Actions

History Log

The Financial Information Management system (FIMS) is currently on hold as FI$Cal (state's financial management system) is not ready to integrate with other financial systems.

California High-Speed Rail Authority	Date	Rating	
Risk Mitigation Actions	June 30, 2017	Current	Prior
		5	

Risk ID	Description
1230	Increased ROW parcel acquisition costs due to additional parcels identified because of design refinements, increased costs of settlements and higher than expected jury trials ruling.
Discipline	
ROW	

Risk Background Information: Costs of ROW parcel acquisition for construction packages 1-4 is experiencing upward pressure as a result of contractor's proposed alternative technical concepts and design refinements that required additional ROW takes, additional ROW parcel needs for utility relocations, compressed timeframe to acquire ROW parcels thereby leading to increased settlement costs, acquisition of excess parcels during settlements, and higher than expected number of parcels acquired by condemnation.

Risk Mitigation Actions

#	Action Description	Deliverable	Due Date
1	Continue to investigate cost mitigations such as disposal of remnant parcels and obtaining revenue from leasing remnant parcels, as these opportunities arise		Ongoing
2	Reviewing design refinements and utility relocation plans to minimize takings		Ongoing
3			
4			
5			

Other Potential Mitigation Actions

History Log

California High-Speed Rail Authority	Date	Rating	
Risk Mitigation Actions	June 30, 2017	Current	Prior
		3	2

Risk ID	Description
1359	Increased cost of PG&E and AT&T work on the Construction Package 1 following reassignment of work from utility agencies to CP 1 Design Build Contractor (TPZP) and increase in scope of work due to unidentified utilities.
Discipline	
Construction / Site	

Risk Background Information: The updated CP 1 risk analysis performed indicates a negative trend with respect to three risks that we initially identified again, those being: Right-of-Way (ROW), utility relocations, and adjacent railroad requirements. The risk analysis indicates that we have the potential of exceeding the contingency envelope for CP 1 if risk mitigation actions are not undertaken.

Risk Mitigation Actions

#	Action Description	Deliverable	Due Date
1	Considering alternate design concepts as well as value engineering solutions.		Ongoing
2	Estimate the extent and scope of utilities, especially underground utilities, and estimate the costs of relocation.	Revised estimate	Complete
3	Perform risk-informed quantitative contingency analysis to develop required contingency over revised estimate of PG&E and AT&T utility relocations.	Third party scope risk contingency analysis	Complete - Analysis performed and presented to F&A committee in May 2016
4	Recommend the Authority Board to allocate additional contingencies to the CP 1 capital cost estimate to account for the increase in third party work.		In Progress
5			

Other Potential Mitigation Actions

History Log

In February 2016, recommended to the Authority Board the need to increase contingencies on CP 1 by about $150M. In September 2017, the Board augmented CP-1 contract contingency by $35M.

Appendix 6 – Authority Business Plans

Business Plans

The Authority's bi-annual Business Plan is its central planning document for the development of the system. In this cyclical two year process the Authority updates construction, operating and revenue information as well as strategic direction, risk and funding. The 2016 Business Plan summarizes the progress we have made over the last two years, updates information and forecasts that were presented in our 2014 Business Plan and identifies key milestones and decisions we anticipate making over the next few years. The Authority's governing statutes are established in the California Public Utilities Code sections 185000-185038; Section 185033, as amended by Assembly Bill (AB) 528 (Lowenthal, Chapter 237, Statutes of 2013), lays out the requirements for the Business Plan and they are as follows:

185033.1 (a) The authority shall prepare, publish, adopt, and submit to the Legislature, not later than May 1, 2014, and every two years thereafter, a business plan. At least 60 days prior to the publication of the plan, the authority shall publish a draft business plan for public review and comment. The draft plan shall also be submitted to the Senate Committee on Transportation and Housing, the Assembly Committee on Transportation, the Senate Committee on Budget and Fiscal Review, and the Assembly Committee on Budget. (b) (1) The business plan shall include, but need not be limited to, all of the following elements: (A) A description of the type of service the authority is developing and the proposed chronology for the construction of the statewide high-speed rail system, and the estimated capital costs for each segment or combination of segments. (B) A forecast of the expected patronage, service levels, and operating and maintenance costs for the Phase 1 corridor as identified in paragraph (2) of subdivision (b) of Section 2704.04 of the Streets and Highways Code and by each segment or combination of segments for which a project level environmental analysis is being prepared for Phase 1. The forecast shall assume a high, medium, and low level of patronage and a realistic operating planning scenario for each level of service. (C) Alternative financial scenarios for different levels of service, based on the patronage forecast in subparagraph (B), and the operating break-even points for each alternative. Each scenario shall assume the terms of subparagraph (J) of paragraph (2) of subdivision (c) of Section 2704.08 of the Streets and Highways Code. (D) The expected schedule for completing environmental review, and initiating and completing construction for each segment or combination of segments of Phase 1. (E) An estimate and description of the total anticipated federal, state, local, and other funds the authority intends to access to fund the construction and operation of the system, and the level of confidence for obtaining each type of funding. (F) Any written agreements with public or private entities to fund components of the high-speed rail system, including stations and terminals, and any impediments to the completion of the system. (G) Alternative public-private development strategies for the implementation of Phase 1. (H) A discussion of all reasonably foreseeable risks the project may encounter, including, but not limited to, risks associated with the project's finances, patronage, right-of-way acquisition, environmental clearances, construction, equipment, and technology, and other risks associated with the project's development. The plan shall describe the authority's strategies, processes, or other actions it intends to utilize to manage those risks. (2) To the extent feasible, the business plan should draw upon information and material developed according to other requirements, including, but not limited to, the pre-appropriation review process and the pre-expenditure review process in the Safe, Reliable High-Speed Passenger Train Bond Act for the 21st Century pursuant to Section 2704.08 of the Streets and Highways Code. The authority shall hold at least one public hearing on the business plan and shall adopt the plan at a regularly scheduled meeting. When adopting the plan, the authority shall take

into consideration comments from the public hearing and written comments that it receives in that regard, and any hearings that the Legislature may hold prior to adoption of the plan. 1 Source: Public Utilities Code Section 185033

All of these requirements are addressed in the 2016 Business Plan and preceding business plans. These documents can be found at the following URL:
http://www.hsr.ca.gov/About/Business_Plans/2016_Business_Plan.html

K0190

From: Barnes, Juliana (FRA)
To: Malone, Desiree@HSR
Cc: Everett, Lynn (FRA); Gilliland, Barbara(PB)@HSR; Giovinazzi, Giles@DOT; Ouhamou, Mariam (FRA); OK-Marian L. Rule; OK-Robert L. Zimmerer
Subject: Feedback: Q3-17 Deliverables (CVPFP)
Date: Tuesday, January 16, 2018 3:36:43 PM
Attachments: 2018-01-05 FY17_18 CVPFP_FRA Review.pdf

Hi Desi,

FRA acknowledges receipt of the FY17/18 Central Valley Project Financial Plan (CVPFP), dated June 2017, on 10/30/17. After review of the deliverable, FRA has enclosed comments rejecting the CVPFP in the attached document to CHSRA (*ref. FY17/18_CVPFP_FRA Review).*

Thank you,

Juliana Barnes, PMP
Project Manager
Office of Program Delivery (RPD-15)
Federal Railroad Administration
801 I St., Suite 466
Sacramento, CA 95814
Cell: 916-215-9115

From: Malone, Desiree@HSR [mailto:Desiree.Malone@hsr.ca.gov]
Sent: Monday, October 30, 2017 9:13 AM
To: Barnes, Juliana (FRA) <juliana.barnes@dot.gov>
Cc: Everett, Lynn (FRA) <lynn.everett@dot.gov>; Gilliland, Barbara(PB)@HSR <barbara.gilliland@hsr.ca.gov>; Giovinazzi, Giles@DOT <Giles.Giovinazzi@dot.ca.gov>
Subject: Q3-17 Deliverables

Hi Juliana,

Attached in this email are deliverables due in Q3-17:

- Q3-17 Transmittal #06646
- Task 1: Various Re-exams (links are in the transmittal)
- Task 5: Annual Work Plan and Central Valley Project Financial Plan

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CHSRA delivered the FY17/18 Central Valley Project Financial Plan (CVPFP), dated June 2017, to FRA on 10/30/17. FRA's review comments follow.

- **Central Valley Project Financial Plan:**
  - Required Components (ARRA Grant Amendment 6):
    - CHSRA will provide for FRA review and approval a Financial Plan for the FCS (FCS Financial Plan) that demonstrates CHSRA has secured firm commitments of all funding (other than that provided through the grant agreements) required to complete construction of the FCS. The financial plan will provide (in year-of-expenditure dollars) finalized annual projections for the sources and uses of all funds, during the development and construction phases of the FCS and a detailed assessment of financial risks facing the FCS during both the construction (including risks such as capital cost overruns, revenue shortfalls, and maintenance cost overruns), along with proposed actions for mitigating or accommodating such risks (including assessment of additional funding sources available to compensate for potential capital financing shortfalls). The FCS Financial Plan will discuss and incorporate the Interim Use Reserve.
  - Key FRA Review Comments from Prior Review:
    - CHSRA needs to develop the document by:
      - Taking into consideration the required components listed above per ARRA Grant Amendment 6, including a focus on the financial specifics of the FCS as a standalone part of the IOS.
      - In lieu of discussing and listing the requirements CHSRA has to meet, highlight how CHSRA prepares an FCP, a budget, etc. and what CHSRA takes into account when preparing an FCP, budget, etc. In other words, discuss how CHSRA meets all the necessary requirements.
  - Comments:
    - FRA rejects the current version of the Central Valley Project Financial Plan, as the document does not adequately address FRA's past review comments and understanding that CHSRA is undergoing a cost to complete analysis that will produce an updated budget and FCP.
    - Please further develop the document in the upcoming submission by:
      - Drafting a CVPFP that is a more comprehensive, detailed document than the quarterly financial reports (budget and FCP). The CVPFP provides CHSRA an opportunity to detail how it determines cost in relation to scope and schedule that the quarterly financial reports do not afford. It demonstrates the methodology taken into account to develop the budget and FCP.
      - Similar to last year, while requirements CHSRA has to meet are discussed also highlight how requirements are met.
      - In addition, ensuring that comments are addressed in the budget and FCP as they are key inputs into the CVPFP.
    - Items of concern:

- The CVPFP indicates that track work (i.e. CP 5 or TS 1) would start on the FCS in 2021, which calls into question whether CHSRA would finish track work prior to end of the period of performance (CVPFP, PDF pg 12).
- "The [FCS] is not contemplated to operate a revenue service upon initial completion; instead it will be used as a test track until it is connected to the rest of the Silicon Valley to Central Valley line in 2025." Independent utility would be met after the period of performance. (CVPFP, PDF pg 33).

K0195

Barnes, Juliana (FRA)

From: Malone, Desiree@HSR <Desiree.Malone@hsr.ca.gov>
Sent: Monday, October 01, 2018 12:44 PM
To: Barnes, Juliana (FRA)
Cc: Everett, Lynn (FRA); Ouhamou, Mariam (FRA); Rooney, Barbara@HSR; Gilliland, Barbara(PB)@HSR; Hawkes, Ryan@HSR
Subject: Q3-18 Grant Deliverables
Attachments: 2018 Annual Work Plan.pdf; 2018 Central Valley Project Financial Plan.pdf; 2018 PMP.PDF; Q3-18 Deliverables Transmittal.doc

Categories: FRA

Hi Juliana,

Attached in this email are the following deliverables for Q3-18 - due on October 1, 2018:

- Q3-18 Transmittal #07395
- 2018 Annual Work Plan (AWP)
- 2018 Program Management Plan (PMP)
- 2018 Central Valley Project Funding Plan (CVPFP)
- CHSTP Design Manual (link to this document is located in the transmittal)

Additionally, the transmittal contains links to reexaminations loaded on the FRA-accessible SharePoint site.

K0196

CALIFORNIA
High-Speed Rail Authority

Central Valley Project Financial Plan (CVPFP)

For Federal Fiscal Year Ending September 30, 2018

www.hsr.ca.gov

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DOCUMENTS REFERENCED THROUGHOUT FUNDING PLAN

2016 Business Plan	http://hsr.ca.gov/About/Business_Plans/2016_Business_Plan.html
2018 Business Plan	https://www.hsr.ca.gov/About/Business_Plans/2018_Business_Plan.html
Funding Contribution Plan - June 30, 2018	http://www.hsr.ca.gov/docs/about/funding_finance/funding_agreements/FCP_Q2_18.pdf
Risk Management Plan	2017 Version Provided Under Separate Cover
2018 Business Plan Capital Cost Basis of Estimate Report	https://www.hsr.ca.gov/docs/about/business_plans/2018_Business_Plan_Basis_of_Estimate.pdf

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Introduction

The California High-Speed Rail Authority (Authority) has prepared this Central Valley Project Financial Plan (CVPFP) in accordance with Federal Railroad Authority (FRA) terms of Cooperative Agreement FR HSR-0009-10-01-06 (American Recovery and Reinvestment Act [ARRA]) and Cooperative Agreement FR-HSR-0118-12-01-00 (High-Speed Intercity Passenger Rail Program (HSIRP) for federal fiscal year 2010 [FY10]). The CVPFP is the Authority's annual financial plan and details the funding available to construct the initial section of California's high-speed rail project in the Central Valley.

The Central Valley Project Overview

This CVPFP is being submitted pursuant to the above-referenced ARRA and FY10 grant agreements as the financial plan for the federal fiscal year ending September 30, 2018. This is a forward-looking document that sets forth the Authority's plan for funding and completing the Central Valley Project (CVP), including critical background and recent developments to provide context.

Data presented for the CVPFP is through June 30, 2018, unless otherwise noted. Figures have been sourced from the Funding Contribution Plan (FCP) – June 30, 2018, the Authority's 2018 Business Plan, and other funding documents sent under prior cover to the FRA. The CVPFP is intended to provide a point in time snapshot of performance to date, forecasted and anticipated performance, and upcoming and known activities in the future. Any financial, cost, or analysis updates not conveyed in this CVPFP will be conveyed in the Authority's next quarterly FCP on September 30, 2018.

The CVP was previously known as the First Construction Segment (FCS) of the Initial Operating Section (IOS). The CVP runs from north of Bakersfield to Madera. The Authority designated the IOS to be constructed as the Silicon Valley to Central Valley line which runs from Bakersfield to San Francisco and includes the CVP.

The scope of CVP in the grant agreements includes Tasks 1-10, listed below.

1. Environmental Review
2. Preliminary Engineering (PE)
3. Other Related Work Needed Prior to Start of Construction
4. Project Administration and Statewide Cost Allocation Plan
5. Program, Project, and CVP Construction Management
6. Real Property Acquisition and Environmental Mitigation
7. Early Work Program (reallocated to other tasks as part of Amendment 6 of the ARRA agreement)
8. Final Design and Construction Contract Work for CVP
9. Interim Use Project Reserve
10. Unallocated Contingency

Spending in Tasks 4 and 7 has been completed.

Exhibit 1: Central Valley Project

Within Phased High-Speed Rail System Implementation Plan

As of June 2018
Source: Exhibit 2.0 of 2018 Business Plan

Project Progress

The official groundbreaking of construction for the high-speed rail system was held on January 6, 2015, in Fresno. In the years that followed, the Authority has advanced construction, secured right-of-way (ROW) parcels, attained permits, continued geotechnical investigations essential to structural design, demolished structures, relocated utilities along the ROW, and begun construction of dedicated high-speed rail viaducts and bridges.

Current Activities

Environmental Clearance and Right-of-Way

For construction in the Central Valley, the Authority has made substantial progress reviewing and approving environmental reexaminations and processing permit amendments needed for project construction. The reexaminations have included, for example, approvals for using new construction staging areas, purchasing right-of-way, relocating utilities, and securing additional natural resource compensatory mitigation sites. Authority environmental staff has also worked to improve and resolve environmental compliance issues between the design-build contractor, project construction manager, and state and federal resource agencies.

Progress has also been achieved with the Authority's preparation of two supplemental environmental documents. This has included circulation of the Fresno to Bakersfield Project Section Draft Supplemental EIR/EIS for the Locally Generated Alternative in November 2017. Publication of the final document will occur late in 2018. In addition, the Authority also intends to circulate in the fall of 2018 the Merced to Fresno Project Section Draft Supplemental EIR/EIS for the Central Valley Wye. This document is to be completed in the summer of 2019.

Construction

Construction is advancing on over 119 miles in the Central Valley with more than a dozen active construction sites and three major structures substantially complete, including the Cottonwood Creek guideway structure, the Fresno River Bridge, and the new Tuolumne Street Bridge, which opened to traffic in August 2017. In addition, work is on-going on the realignment of State Route 99 in Fresno to make room for high-speed rail. Comprehensive project management, finance, and risk reports have been developed and are updated monthly, reviewed by the Finance and Audit Committee of the Board, and posted to the Authority's website:

http://www.hsr.ca.gov/Board/monthly_fa_committee_meeting.html

Early Train Operator

At the end of 2017, the Authority contracted with DB Engineering & Consulting USA, a subsidiary of Deutsche Bahn AG, as the Early Train Operator (ETO). In this role, DB Engineering & Consulting USA will assist the Authority in developing the system—including operational planning, procurement of track and systems, stations, and trainsets (an operator, responsible for initial operations and maintenance, will be selected in the future). In addition to helping with operational design and implementation, the ETO will bring industry expertise to current ridership and revenue strategies to assist the Authority in future decisions on how to maximize ridership and revenue.

More information can be found here: https://www.hsr.ca.gov/Programs/early_train_operator.html

Quarterly Performance Reporting

The status of key grant agreement tasks is reported and tracked in several reports that the Authority provides to the FRA on a quarterly basis. These reports include both performance / status reports, and financial reports on the program's progress.

Performance reports include:

- Quarterly performance reports for both the ARRA and FY10 grant agreements on progress to date
- ROW acquisition plan and any updates to the Contingency Management Plan

Financial reports include:

- Quarterly Budget Update and Quarterly Expenditure Summary (form SF 425 for ARRA and FY10)
- Quarterly FCP
- Semi-annual bond reports and budget adjustment requests

Construction Package Status

The Authority maintains reports on a monthly basis that provide status and progress updates for all construction packages. Those reports provide both additional detail and context regarding the planning and construction of the CVP, including but not limited to schedule, progress, time spent, percentage complete, and descriptions of various activities. The reports are available by following the links to the Authority's monthly Finance & Audit Committee meeting materials:
https://www.hsr.ca.gov/Board/monthly_fa_committee_meeting.html

Looking Forward

The Authority continues to proactively manage two primary state funding sources, Proposition 1A (or Prop 1A) bond proceeds and Cap-and-Trade auction revenues, as summarized below:

- No new Prop 1A approvals for CVP construction have been required since March 2017, when the Authority received approval from the California Director of Finance of a funding plan to access Prop 1A funds for certain Phase 1 development costs and CVP construction cost, including to provide state match to federal funds. The Authority is actively reviewing options for the application of the remaining Authority share of Prop 1A bond proceeds, and may submit one or more new funding plans in compliance with Prop 1A requirements as soon as 2019.
- Cap-and-Trade revenues continue to be applied to the CVP and other approved project costs on a "pay-as-you-go" basis (i.e., without use of bond financing).

Additional detail is available in the following funding plan:
http://www.hsr.ca.gov/docs/about/funding_finance/CV_Segment_Funding_Plan.pdf

Central Valley Segment – Cost to Complete

Exhibit 2 shows the Authority's current estimate to complete for the CVP. This update now estimates the project will cost $10.669 billion in year of expenditure dollars (YOE$).

Exhibit 2: Cost Summary Table by Funding Source

Task Description	FY10 Grant Federal	ARRA Grant Federal	State	Local	Total	Additional State	Total
Phase 1 Project Development							
Task 1: Environmental Review	-	264,171,741	294,785,303	-	**558,957,044**	259,375,784	818,332,828
Task 2: Preliminary Engineering (PE)	-	181,370,334	122,763,763	-	**304,134,097**	44,412,312	348,546,408
Task 3:Other Related Work Needed Prior to Start of Construction	-	39,135,726	23,281,118	52,100,000	**114,516,844**	39,504,587	154,021,431
Task 4: Project Administration & State-wide Cost Allocation Plan (SWCAP)	-	677,872	-	-	**677,872**	-	677,872
Phase 1 Project Development Subtotal	**-**	**485,355,673**	**440,830,184**	**52,100,000**	**978,285,857**	**343,292,683**	**1,321,578,540**
First Construction Segment							
Task 5: Program, Project and FCS Construction Management	19,152,517	293,544,437	207,114,115	-	**519,811,069**	210,654,272	730,465,341
Task 6: Real Property Acquisition and Environmental Mitigation	-	573,619,952	522,726,032	-	**1,096,345,984**	490,610,502	1,586,956,486
Task 7: Early Works	-	-	-	-	**-**	-	-
Task 8: Final Design and Construction Contract Work for the FCS	801,444,230	1,141,105,464	1,596,538,791	-	**3,539,088,484**	2,856,645,956	6,395,734,440
Task 9: Interim Use Project Reserve	108,023,253	53,856,392	46,267,109	-	**208,146,754**	-	208,146,754
Task 10: Unallocated Contingency	-	-	-	-	**-**	425,862,179	425,862,179
First Construction Segment Subtotal	**928,620,000**	**2,062,126,245**	**2,372,646,047**	**-**	**5,363,392,291**	**3,983,772,909**	**9,347,165,200**
Total	**928,620,000**	**2,547,481,917**	**2,813,476,231**	**52,100,000**	**6,341,678,148**	**4,327,065,592**	**10,668,743,740**

Source: Submitted FCP (Funding Contribution Plan) for the period ending June 30, 2018 (pg. 14 of 69)
Note: Additional state funding sources column includes Cap-and-Trade revenues

Organization of the Plan

This plan is organized into five sections and six appendices as described in **Exhibit 3,** below.

Exhibit 3: Central Valley Project Financial Plan Sections

Section	Description of Contents
A. Sources of Funding	Describes the sources of funding available to the project in detail.
B. Annual Sources and Uses Projections	Presents annual sources and uses split out by task and by funding source for both construction and pre-construction/development phase activities.
C. Risks	Presents the risks as reported by the Authority's risk management function. Detailed risks by categorization also are provided in the appendices.
D. Costing Methodology	Addresses updates to the projected capital costs for the CVP, and describes changes in key assumptions and methodologies.
E. Interim Use Reserves	Describes the interim use and independent utility options available to the project.
Appendix 1	Text of Proposition 1A
Appendix 2	California State Budget Process
Appendix 3	Extract of SB 862 and AB 398 Cap-and-Trade Program Language
Appendix 4	Summary of Funding Sources, Appropriations, Risks, and Risk Mitigations
Appendix 5	Top Risks
Appendix 6	Authority Business Plans

A. Sources of Funding

Demonstrates the Authority has identified the sources of funding other than that provided through this agreement required to complete construction of the Project and has a strategy to secure firm commitments of such fund. "Fully committed" means a state legislature budget appropriation, enacted into law, with sufficient state match funding to fund, with FRA's match, the budget of the Project.

FRA REQUIREMENT	HOW REQUIREMENT IS MET
Identify the sources of funding required to complete construction	See **Identified Sources of Funding.** **Exhibit A-1** identifies $10.669 billion in required funding for the CVP and provides a breakdown of the sources used to meet the combined planning and construction costs. **Exhibit A-2** and **Exhibit A-3** provide additional detail regarding funding sources for planning and construction costs, respectively.
Strategy to secure firm commitments of such funds	See **Secured State Funding** and **Secured Local Funding.** These sub-sections provide descriptions of the strategy to secure commitments of the necessary funds, including details about the appropriations process, the sale of bonds, and specifics regarding Cap-and Trade auction revenues and local match funding sources. **Exhibit A-4** and **Exhibit A-5** lists all one-time and on-going appropriations of Cap-and-Trade auction proceeds to the Authority. **Exhibit A-6** provides the state Legislative Analyst's Office forecast of future Cap-and-Trade revenues.

Identified Sources of Funding

The estimated capital cost of the CVP in year-of-expenditure (YOE) dollars is approximately $10.669 billion[1]. CVP costs will be fully funded from the following combined sources in compliance with the terms and conditions associated with each source, as summarized below.

- Federal funds are authorized under the ARRA and FY10 grant agreements.
- State general obligation bonds are authorized under the Safe, Reliable High-Speed Passenger Train Bond Act for the 21st Century (Bond Act, or Prop 1A) approved by voters in 2008.
- State Cap-and-Trade funds are authorized through the Budget Act of 2014 (SB 852 and SB 862) and current laws.

[1] A detailed table of sources and uses is contained in Section B.

To date, the Authority has secured significant funds from both state and federal sources, and a smaller amount of local matching funds. These funds are being used to deliver the CVP to complete project development and related work for the entire Phase 1 system, consistent with federal grant agreements. The Authority is currently operating on a pay-as-you-go funding approach, which means that contracts are let as funding is identified.

Exhibit A-1. Identified Funding for Phase 1 Project Development Costs

Funding Sources	$ millions
FY10 Grant Federal	-
ARRA Grant Federal	485
State Match and Other State Funds	784
Local Match	52
Total Planning Sources	**1,322**

Source: Submitted FCP Report Jun 2018 (Funding Contribution Plan) (pg. 15 of 69)
Note: State Match and Other State Funds, above, include Prop 1A and Cap-and-Trade

Exhibit A-2. Identified Funding for CVP Construction Costs

Funding Sources	$ millions
FY10 Grant Federal	929
ARRA Grant Federal	2,062
State Match and Other State Funds	6,356
Local Match	-
Total CVP Construction Sources	**9,347**

Source: Submitted FCP Report Jun 2018 (Funding Contribution Plan) (pg. 14 of 69 and pg. 18 of 69)
Note: State Match and Other State Funds, above, include Prop 1A and Cap-and-Trade

Exhibit A-3. Identified Total Funding for Phase 1 Project Development and CVP Construction Costs

Funding Sources	$ millions
FY10 Grant Federal	929
ARRA Grant Federal	2,547
State Match and Other State Funds	7,141
Local Match	52
Total CVP Construction Sources	**10,669**

Source: Submitted FCP Report Jun 2018 (Funding Contribution Plan) (pg. 14 of 69)
Note: State Match and Other State Funds, above, include Prop 1A and Cap-and-Trade

Secured Federal Funding

American Recovery and Reinvestment Act (ARRA) Grant – The expenditure of ARRA grant funds represents a significant milestone in the life of the program. This money has been expended on system planning and Central Valley civil works contract packages in compliance with the federal grant agreement. More than $2.547 billion has been expended to date on construction in the Central Valley and planning for the Phase 1 system. The full expenditure of the grant was achieved before the federally mandated completion date.

FY10 Grant – Once ARRA funds are fully matched with state funds, the Authority will access a further $928.6 million of federal FY10 grant funding for construction in the Central Valley. The entire FY10 balance remains available as of June 30, 2018.

Secured State Funding

Multiple secured state funding sources are described in this CVPFP. California's Prop 1A funds include $2.609 billion, specifically appropriated for CVP construction activities, which were committed through the enactment of SB 1029, passed by the California State Legislature and signed by Governor Brown in July 2012. These funds are being used to meet the federally required match. The State also is providing $784.1 million of matching funds (Prop 1A and Cap-and-Trade) for the development phase of the CVP and other Phase 1 segments. **See "Receipt of Firm Funding Commitments," for each respective state funding source, below, for additional details.**

[1] PD: Project development; PE: Preliminary engineering; NEPA: National Environmental Policy Act; and CEQA: California Environmental Quality Act.

Proposition 1A Overview

In 2008, voters approved Proposition 1A, which provided a total of $9.950 billion for high-speed rail planning and construction, along with regional connectivity projects ($950 million); $9 billion of the proceeds will be used to build the high-speed rail system. In March 2017, the Authority successfully received permission to access $2.609 billion in Proposition 1A funds for construction in the Central Valley. These funds provide the required state match to the federal ARRA funds and have allowed construction to proceed. A further $4.166 billion in future bond proceeds is still available for appropriation by the Legislature for construction of the Silicon Valley to Central Valley Line, which includes the CVP. In addition to Prop 1A allocated for construction, the Authority has received permission to access $526.3 million for Phase 1 project development costs.

Prop 1A establishes a multi-step process that must be completed prior to the issuance of bonds to construct the high-speed rail project. The Authority must meet pre-appropriation review requirements before the State Legislature will appropriate funds for the segment. In particular, the pre-appropriation review process is codified in Streets and Highways Code (S&H) section 2704.08(c), which requires the Authority to submit a detailed funding plan (the Funding Plan) to the Director of Finance, the Independent Peer Review Group[2] and the fiscal and transportation policy committees in both houses of the State Legislature, 90 days prior to submitting the initial request for appropriation of bond proceeds for construction phase costs. The detailed Funding Plan must be approved by the Authority's Board of Directors and the Legislature must then appropriate the budget for the expenditure of the future bond proceeds. The Authority submitted such a Funding Plan in 2011, and after which SB 1029 appropriated the Prop 1A funds for the CVP in 2012.

Following appropriation, the High-Speed Passenger Train Finance Committee authorizes the issuance of the bonds. The Authority also must meet a pre-expenditure review requirement prior to committing bond proceeds for construction purposes. Pursuant to S&H section 2704.08(d), prior to committing any bond proceeds for construction expenditure purposes, the Authority shall submit another detailed funding plan (the Expenditure Funding Plan), highlighting any changes from the original Funding Plan and meeting other statutory requirements. The Expenditure Funding Plan must be submitted to the Director of Finance and the Chairperson of the Joint Legislative Budget Committee for review and is subject to approval by the Director of Finance within 60 days.

[2] The Peer Review Group is established under Section 185035 of the Public Utilities Code. The Peer Review Group is comprised of eight independent members: Two individuals with experience in the construction or operation of high-speed trains in Europe or Asia (designated by the State Treasurer); two individuals with experience in the engineering and manufacturing of high-speed trains, and one with experience in project finance (designated by the State Controller); one representative from a financial services or financial consulting firm (designated by the State Director of Finance); one representative with experience in environmental planning (designated by the Secretary of the California State Transportation Agency); and two expert representatives from agencies providing intercity or commuter passenger train services in California (designated by the Secretary of the California State Transportation Agency). The purpose of the Peer Review Group is to review the planning, engineering, financing and other elements of the Authority's plans and issue an analysis of appropriateness and accuracy of the Authority's assumptions and an analysis of the viability of the Authority's financing plan.

Receipt of Firm Funding Commitments for Proposition 1A

Both the High-Speed Passenger Train Finance Committee approval and subdivision (d) Expenditure Funding Plan requirements were met since 2012, and the bonds are now authorized for sale at the State's periodic general obligation bond sales. Through June 30, 2018, the State has sold $2.624 billion in Prop 1A bonds for project development, construction, administration, and bookend projects.[2]

The Authority works closely with the California Department of Finance (DOF) to develop cash flow projections for the Authority's funding needs. The Authority completes a biannual bond survey that is submitted to the DOF to identify the need for bond proceeds for the next five fiscal years. The DOF will then include the sale of general obligation bonds as part of the DOF's cash flow projections, which are submitted to the State Treasurer's Office (STO). Funding needs are then incorporated when the STO determines the timing and amount of the State's general obligation bond sales. The Prop 1A bonds are sold as part of a combined issuance of State of California general obligation bonds for a variety of voter- approved purposes.

The STO manages the issuance of the State's general obligation financings using two tools – short-term commercial paper and long-term bonds. General obligation commercial paper has maturities of under 270 days, and long-term general obligation bonds typically have final maturities of 10 to 30 years.

Commercial paper may be issued as frequently as weekly and then may be "refunded" by issuance of the long-term bonds on a less frequent basis (e.g., quarterly). In combination, these tools enable the STO to manage bond issuance capacity to cost-effectively meet the needs of various state programs, such as the high-speed rail program, that rely on timely receipt of bond proceeds to advance critical projects.

Cap-and-Trade Revenues Overview

The Authority has received both one-time Cap-and-Trade funding as well as a 25 percent continuous funding appropriation. The one-time funding has provided $650 million in proceeds to the Authority. The quarterly auctions have delivered variable amounts each quarter since August 2015. Including the one-time funding and quarterly auction proceeds through August 2018, the Authority has received $2.237 billion in Cap-and-Trade funding.

Receipt of Firm Funding Commitments for Cap-and-Trade Revenues

The one-time and on-going appropriations from Cap-and-Trade auction proceeds that have been received by the Authority are shown in **Exhibit A-4** and **Exhibit A-5**, below. These proceeds equal $2.237 billion in total through the August 2018 auction.

[2] Source: https://bondlinkcdn.com/29/Authorized_and_Outstanding_Final_6-30-18_-_Revised_%28002%29.Q6fz07kr.pdf and http://www.hsr.ca.gov/docs/brdmeetings/2018/brdmtg_081618_FA_Cash_Management_Report.pdf

Exhibit A-4. One-time and On-going Appropriations of Cap-and-Trade Auction Proceeds

Funding Milestone	Amounts
One-time Appropriations (Budget Act of 2014):	
SB 852 – For Fiscal Year 2014-15	$250,000,000
SB 862 – For Fiscal Year 2015-16	$400,000,000
Subtotal – One-time Appropriations	**$650,000,000**
On-going Appropriation of Auction Proceeds (SB 862):	
August 2015 Auction	$161,332,633
November 2015 Auction	$164,194,827
February 2016 Auction	$129,246,998
May 2016 Auction	$2,509,168
August 2016 Auction	$2,096,977
November 2016 Auction	$91,077,691
February 2017 Auction	$2,040,971
May 2017 Auction	$127,763,161
August 2017 Auction	$140,534,316
November 2017 Auction	$215,703,498
February 2018 Auction	$181,650,870
May 2018 Auction	$169,786,495
August 2018 Auction	$199,538,376
Subtotal – On-going Appropriations	1,587,475,981
Total Cap-and-Trade Funding	**$2,237,475,981**

Source: Exhibit 3.3, 2018 Business Plan, updated with subsequent auction results.

Exhibit A-5. Last Four Quarterly Cap-and-Trade Auctions vs. Forecast ($ millions) – as of August 2018

Funding Milestone	Nov 2017	Feb 2018	May 2018	Aug 2018	Total
Actual Proceeds to HSR	$215.7	$181.7	$169.8	$199.5	**$766.7**
Forecast - $500 million	$125.0	$125.0	$125.0	$125.0	**$500.0**
Forecast - $750 million	$187.5	$187.5	$187.5	$187.5	**$750.0**

Source: California Air Resources Board, as of August 2018 (Actual Proceeds).

Local Funding Summary

The Authority anticipates receiving $52.1 million from local municipal and county partners in Northern California, the Central Valley, and Southern California for station planning, project development, and other related work, per memorandum of understanding with each partnering local agency.

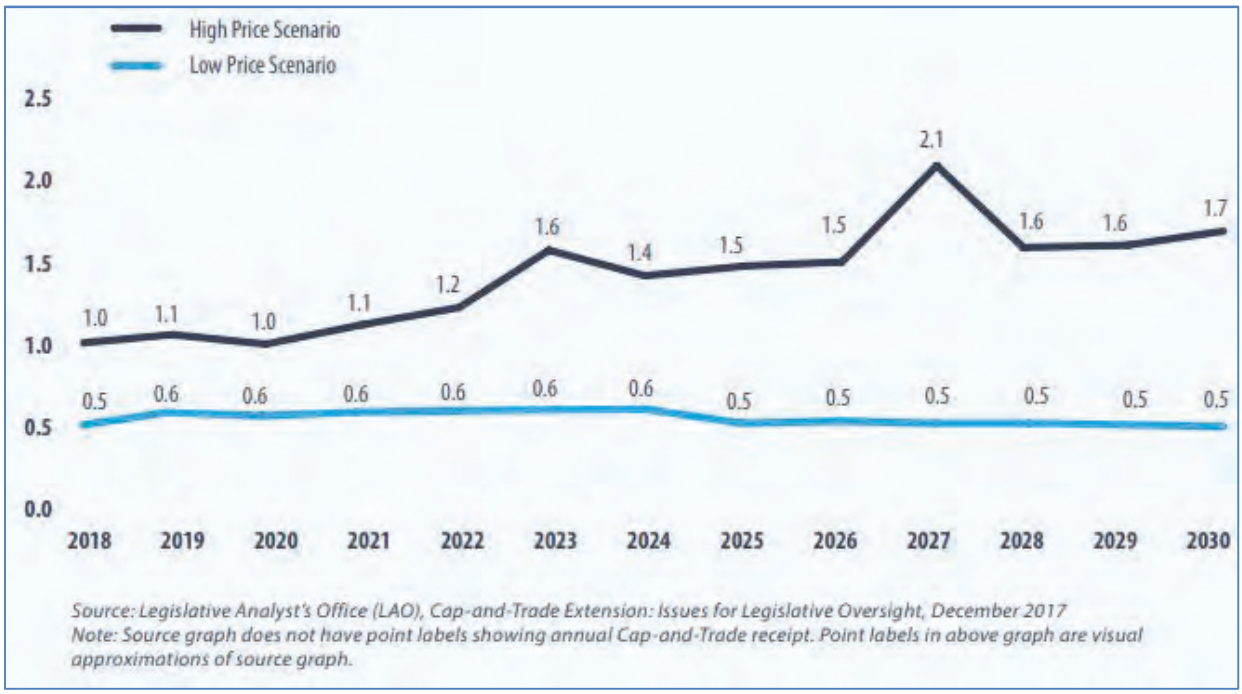
Looking Forward

The variable nature of Cap-and-Trade auction proceeds means that trends are difficult to predict. However, recent auctions have yielded more consistent results and, if this turns into a longer-term trend, it will strengthen the Authority's continuous ability to fund the system. In December 2017, the Legislative Analyst's Office (LAO) produced a report entitled "Cap-and-Trade Extension: Issues for Legislative Oversight." The LAO provides two revenue scenarios in the report, under the following assumptions:

- Low price scenario—All allowances sell at the minimum price established by the California Air Resources Board from 2018 to 2030.
- High price scenario—Prices are roughly $20 in 2018 and increase to a price ceiling of about $85 in 2030 (in 2017 inflation-adjusted dollars).

Under these two LAO scenarios, Authority revenues could range from $500 million to $1 billion in 2018 and from $500 million to about $1.7 billion in 2030. On a cumulative basis, total proceeds until 2030 could provide a funding source ranging from $7.1 billion to $18.4 billion. The Authority has assumed that annual receipts will be $750 million for the purposes of capital planning. This planning assumption has been increased from the 2016 Business Plan assumption of $500 million because actual auction receipts are trending higher and LAO estimates indicate that $750 million is reasonable and within the range of potential receipts. See **Exhibit A-6,** below for the LAO's forecasts. Actual receipts are likely to differ as they are contingent upon a market-based auction but using a $750 million assumption would yield $9.750 billion in proceeds between December 2017 and December 2030.

Exhibit A-6 Authority Share of Cap-and-Trade Revenue Based on LAO Revenue Forecast (2018-2030, $ in billions)



Source: Exhibit 3.4, 2018 Business Plan

B. Annual Sources and Uses Projections

The financial plan shall provide (in year-of-expenditure dollars) finalized annual projections for the sources and uses of all funds, during the development and construction phases of the project.

FRA REQUIREMENT	HOW REQUIREMENT IS MET
Provide annual projections for sources and uses during construction and development	See **Annual Sources and Uses.** **Exhibit B-1** lists annual sources and uses of funds, with uses broken out by task. **Exhibit B-2** lists planning and construction costs by task. **Exhibit B-3** sets forth funding allocations for all Phase 1 project development costs by segment, including planning costs for the CVP.

Annual Sources and Uses

The annual sources and uses of funds for pre-construction Phase 1 project development and CVP construction are detailed in the Authority's FCP for the period ending June 30, 2018. The FCP is provided quarterly to the FRA, as a requirement of the grant agreement. The Authority works collaboratively with the FRA on an on-going and pro-active basis in order to further refine the FCP's content and format.

The cost forecasts for CP 1, CP 2-3, CP 4, and SR-99 Realignment Project (a 2.5-mile project within the limits of CP 1 managed by Caltrans) are based on approved cost-loaded schedules. These cost forecasts are monitored monthly for variances between the planned value and the earned value. Cost forecasts are adjusted monthly to account for variances, trends, and changes. The Authority has not yet executed CP 5, and the CP 5 cost and cash flow forecasts are not based upon contractual milestones.

The annual sources and uses are presented in **Exhibit B-1,** below, which also includes the annual sources and uses of funds broken out by Task 1 through 10 (descriptions sourced from grant agreements).

The sources and uses tables below represent historical and forecast expenditures provided to the FRA for reporting period ending June 30, 2018. This information has been further expanded to describe state funding sources that are presently available – Prop 1A and Cap-and-Trade. On a periodic basis, the Authority will determine what state funding will be used to match available federal grant funding so to best optimize the funding plans for the entire program. This may result in changes to the makeup of state funding sources, but not a reduction. This information will be captured in successive reports, which will update the forecast use of funds and expenditures as information becomes available. The Authority will determine how it allocates state funding sources by considering all funding needs for the program and allocating them as it deems most appropriate.

It should be noted that state match items are subject to federal reviews and approval, which are on-going through the end of the project performance period. The Authority is committed to working with the FRA in providing the necessary detail for the review of state match items.

Exhibit B-1. Combined Sources and Uses – Phase 1 Project Development and CVP Construction

	Sources and Uses ($ 000's)	Period Start Period End	1-Jul-10 30-Jun-11	1-Jul-11 30-Jun-12	1-Jul-12 30-Jun-13	1-Jul-13 30-Jun-14	1-Jul-14 30-Jun-15	1-Jul-15 30-Jun-16	1-Jul-16 30-Jun-17	1-Jul-17 30-Jun-18	1-Jul-18 30-Jun-19	1-Jul-19 30-Jun-20	1-Jul-20 30-Jun-21	1-Jul-21 30-Jun-22	1-Jul-22 30-Jun-23
Sources															
Federal															
	ARRA	2,547,482	98,587	19,536	70,297	290,120	195,932	947,631	917,460	7,919	-	-	-	-	-
	FY10	928,620	-	-	-	-	-	-	-	-	-	-	327,767	480,095	120,758
	Total Federal	**3,476,102**	**98,587**	**19,536**	**70,297**	**290,120**	**195,932**	**947,631**	**917,460**	**7,919**	**-**	**-**	**327,767**	**480,095**	**120,758**
State & Local															
	State	7,140,542	104,400	52,518	29,031	20,692	290,767	50,123	78,658	913,139	1,527,763	1,826,057	2,048,464	173,396	25,533
	Other/Local	52,100	-	-	-	-	-	-	11,085	1,203	37,118	587	1,697	409	-
	Total State & Local	**7,192,642**	**104,400**	**52,518**	**29,031**	**20,692**	**290,767**	**50,123**	**89,743**	**914,342**	**1,564,881**	**1,826,644**	**2,050,161**	**173,806**	**25,533**
Total Sources		**10,668,744**	**202,987**	**72,054**	**99,328**	**310,812**	**486,699**	**997,754**	**1,007,203**	**922,262**	**1,564,881**	**1,826,644**	**2,377,928**	**653,901**	**146,292**
Uses															
Task 1	Environmental Review	818,333	131,290	58,251	56,800	57,154	42,032	57,332	83,967	55,309	99,309	91,802	79,509	5,577	-
Task 2	Preliminary Engineering (PE)	348,546	64,564	11,578	24,437	29,330	11,633	45,440	38,392	33,133	64,239	19,719	5,400	682	-
Task 3	Other Related Work Needed Prior to Start of Construction	154,021	7,130	2,225	11,419	7,619	(1,276)	10,990	23,963	12,899	56,861	7,345	14,215	633	-
Task 4	Project Administration and Statewide Cost Allocation Plan	678	-	-	-	660	18	-	-	-	-	-	-	-	-
	Pre Construction Subtotal	**1,321,579**	**202,984**	**72,054**	**92,656**	**94,763**	**52,407**	**113,762**	**146,322**	**101,340**	**220,409**	**118,866**	**99,124**	**6,892**	**-**
Task 5	Program, Project and FCS Construction Management	730,465	-	-	56	43,528	53,783	97,832	111,876	155,706	94,608	95,652	63,020	10,576	3,829
Task 6	Real Property Acquisition and Environmental Mitigation	1,586,956	3	-	3,994	81,221	259,178	281,515	235,986	113,366	218,119	237,476	156,098	-	-
Task 7	Early Work Program - N/A	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Task 8	Final Design and Construction Contract Work for the FCS	6,395,734	-	-	2,622	91,300	121,330	450,789	513,019	551,850	1,031,745	1,374,650	1,542,857	591,734	123,838
Task 9	Interim Use Project Reserve	208,147	-	-	-	-	-	53,856	-	-	-	-	90,966	44,699	18,625
Task 10	Unallocated Contingency	425,862	-	-	-	-	-	-	-	-	-	-	425,862	-	-
	Construction Subtotal	**9,347,165**	**3**	**-**	**6,672**	**216,049**	**434,292**	**883,992**	**860,881**	**820,921**	**1,344,472**	**1,707,778**	**2,278,804**	**647,009**	**146,292**
Total Uses		**10,668,744**	**202,987**	**72,054**	**99,328**	**310,812**	**486,699**	**997,754**	**1,007,203**	**922,262**	**1,564,881**	**1,826,644**	**2,377,928**	**653,901**	**146,292**

Source: Submitted FCP (Funding Contribution Plan) for the period ending June 30, 2018 (pgs. 16 of 69 and 18 of 69)
Note: State funding sources line item includes both Prop 1A and Cap-and-Trade revenues for ease of presentation Note: Small differences in sources and uses totals may occur due to rounding

The allocation of funds among federal, state and local sources toward Phase 1 project development costs and CVP construction costs are detailed in the FCP. As noted previously, the FCP is updated on a quarterly basis to reflect recent Board approved decisions and/or revised projections. The Cost Summary Table reflects both project development and construction tasks as of June 2018 and is presented in **Exhibit B-2**, below. This table is followed by the Funding Allocation for Phase 1 project development costs, by segment, in **Exhibit B-3**. **Exhibit B-3** provides cost information for planning activities related to the CVP and Phase 1 project development. Program-wide costs (RDP Phase 1, resource agencies, legal costs, and other project development costs) are not separated by geographical segment.

Exhibit B-2. Cost Summary Table

Task Description	FY10 Grant Federal	ARRA Grant Federal	State	Local	Total	Additional State	Total
Phase 1 Project Development							
Task 1: Environmental Review	-	264,171,741	294,785,303	-	**558,957,044**	259,375,784	818,332,828
Task 2: Preliminary Engineering (PE)	-	181,370,334	122,763,763	-	**304,134,097**	44,412,312	348,546,408
Task 3:Other Related Work Needed Prior to Start of Construction	-	39,135,726	23,281,118	52,100,000	**114,516,844**	39,504,587	154,021,431
Task 4: Project Administration & State-wide Cost Allocation Plan (SWCAP)	-	677,872	-	-	**677,872**	-	677,872
Phase 1 Project Development Subtotal	**-**	**485,355,673**	**440,830,184**	**52,100,000**	**978,285,857**	**343,292,683**	**1,321,578,540**
First Construction Segment							
Task 5: Program, Project and FCS Construction Management	19,152,517	293,544,437	207,114,115	-	**519,811,069**	210,654,272	730,465,341
Task 6: Real Property Acquisition and Environmental Mitigation	-	573,619,952	522,726,032	-	**1,096,345,984**	490,610,502	1,586,956,486
Task 7: Early Works	-	-	-	-	**-**	-	-
Task 8: Final Design and Construction Contract Work for the FCS	801,444,230	1,141,105,464	1,596,538,791	-	**3,539,088,484**	2,856,645,956	6,395,734,440
Task 9: Interim Use Project Reserve	108,023,253	53,856,392	46,267,109	-	**208,146,754**	-	208,146,754
Task 10: Unallocated Contingency	-	-	-	-	**-**	425,862,179	425,862,179
First Construction Segment Subtotal	**928,620,000**	**2,062,126,245**	**2,372,646,047**	**-**	**5,363,392,291**	**3,983,772,909**	**9,347,165,200**
Total	**928,620,000**	**2,547,481,917**	**2,813,476,231**	**52,100,000**	**6,341,678,148**	**4,327,065,592**	**10,668,743,740**

Source: Submitted FCP (Funding Contribution Plan) for the period ending June 30, 2018 (pg. 14 of 69)
Note: Additional state funding sources column includes Cap-and-Trade revenues

Exhibit B-3. Funding Allocation for Phase 1 Project Development by Segment

Task Description	FY10 Grant Federal	ARRA Grant Federal	State	Local	Additional State	Total
Phase 1 Project Development						
Project Development						
RDP Phase I	-	113,853,303	149,089,489	-	80,384,647	**343,327,439**
Resource Agencies/Legal Costs Phase I	-	45,892,350	95,662,869	-	191,208,925	**332,764,144**
San Francisco - San Jose	-	17,719,115	18,702,143	-	21,041,990	**57,463,248**
San Jose – Merced	-	34,772,408	29,699,708	-	14,697,799	**79,169,915**
Merced - Fresno	-	50,231,191	36,681,883	-	352,638	**87,265,712**
Fresno – Bakersfield	-	87,463,690	30,997,389	-	412,731	**118,873,810**
Bakersfield – Palmdale	-	18,861,544	18,827,961	-	12,838,023	**50,527,528**
Palmdale - Los Angeles	-	86,600,607	40,316,182	-	12,181,368	**139,098,157**
Los Angeles - Anaheim	-	25,510,859	18,983,799	-	10,174,563	**54,669,221**
Other Project Development Costs						
Project Administration and Indirect Costs	-	677,872	-	-	-	**677,872**
Station Area Planning	-	3,772,733	1,868,762	4,752,568	-	**10,394,062**
LAUS/Southern CA Improvements	-	-	-	47,347,432	-	**47,347,432**
Subtotal	**-**	**485,355,673**	**440,830,184**	**52,100,000**	**343,292,683**	**1,321,578,540**

Source: Submitted FCP (Funding Contribution Plan) for the period ending June 30, 2018 (pg. 15 of 69)

Looking Forward

Looking to FY 2018-2019, the Authority's total CVP budget for the year is $1.565 billion. The Authority anticipates the following task area expenditures in this fiscal year. With the completion of ARRA federal spending in FY 2016-2017, all these FY 2018-2019 expenditures are funded by state sources.

Exhibit B-4. Funding Allocation for Phase 1 Project Development by Segment

Task	Description	FY 2018-2019 Projections ($ 000's)
Task 1	Environmental Review	$99,309
Task 2	Preliminary Engineering	$64,239
Task 3	Other Related Work Needed Prior to Start of Construction	$56,861
Task 4	Project Administration and Statewide Cost Allocation Plan	$0
Task 5	Program, Project, and FCS Construction Management	$94,608
Task 6	Real Property Acquisition and Environmental Mitigation	$218,119
Task 7	Early Works	$0
Task 8	Final Design and Construction Contract Work for the FCS	$1,031,745
Task 9	Interim Use Project Reserves	$0
Task 10	Unallocated Contingency	$0
Total		**$1,564,881**

Source: Submitted FCP (Funding Contribution Plan) for the period ending June 30, 2018 (pg. 4 of 69, and pg. 13 of 69)

Consistent with a commitment to further update cost estimates as further contract, bid, and invoice data become available, the Authority is currently working on the March 2019 Project Update Report to the State Legislature, which will include an updated program baseline capital cost estimate for the CVP and result in an updated sources and uses analysis. In the event of any cost increases to the CVP, the Authority Board has prioritized the completion of the federally funded CVP. The Authority will communicate any cost, schedule, and funding changes as new information becomes available.

C. Risks

A detailed assessment of the risks facing the Central Valley Project during the construction (such as capital cost overruns, revenue shortfalls, and maintenance cost overruns), along with proposed actions for mitigating or accommodating such risks (including assessment of additional funding sources available to compensate for potential capital financing shortfalls)

FRA REQUIREMENT	HOW REQUIREMENT IS MET
Assessment of risks facing CVP during construction	See description in the **Project Management and Governance** and the **Risk Management Office** subsections.
Proposed actions for mitigating or accommodating risks	Proposed mitigation actions are contained in **Appendix 4 and Appendix 5**.

The Authority has introduced a comprehensive framework to manage and mitigate risk. This includes expanded project management, governance, and risk management functions that are charged with the management and mitigation of risk. These functions are described in this section, whereas specific risks and mitigations are described in **Appendix 4** and **Appendix 5**.

Project Management and Governance

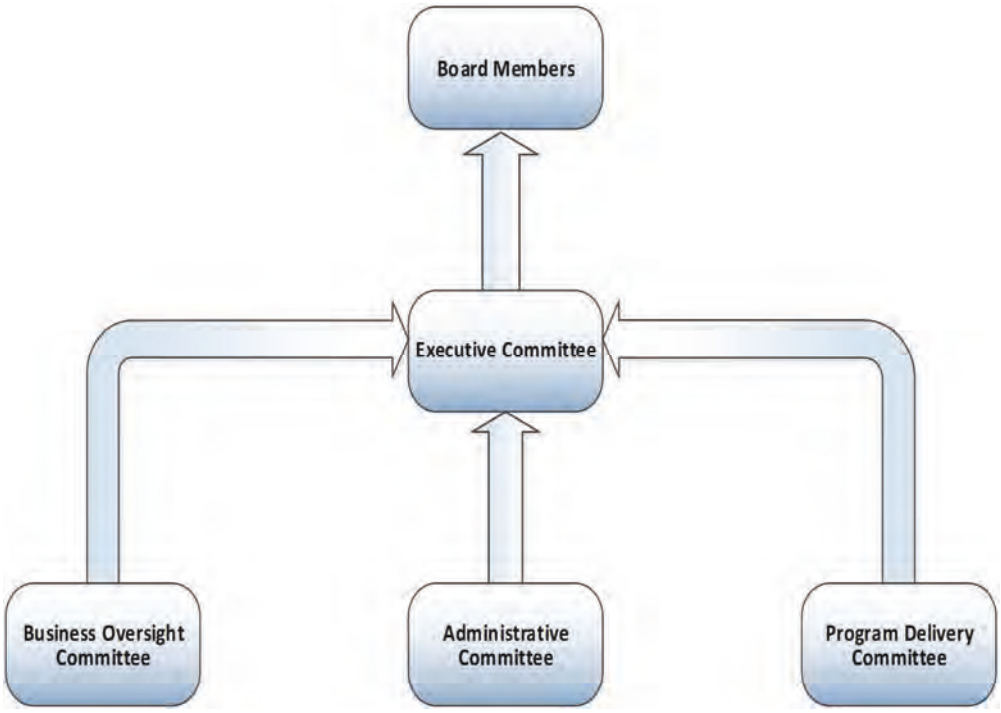
The California High-Speed Rail Program's overall mission is to connect California's diverse communities, and improve mobility, the economy and the environment, by delivering a functional, certified, and commercially viable high-speed rail system. The Authority recognizes that effective management of risks is one way to support delivery of a successful program and, accordingly, has developed a Risk Management Program for this purpose. This program operates within the overall project management plan and governance structure of the Authority, as described below.

Governance Committee Structure

The Authority maintains a structure of four governance committees, each with its own purpose, roles, organization and operations. These committees are made up of Authority and RDP staff that interact to make key decisions on behalf of the program. The organization of these committees is necessary for the Authority to have a strong governance structure, with a streamlined process for decision-making and problem-resolution.

The four governance committees – the Executive Committee, the Program Delivery Committee (PDC), the Business Oversight Committee (BOC) and the Administrative Committee – regularly interact with one another. The PDC, BOC and Administrative Committee report directly to the Executive Committee and engage with one another as needed.

Exhibit C-1. The Authority's Governance Committees



Source: Project Management Plan, dated September 30, 2018

Executive Committee – serves as the senior governance committee. Members of the committee advise the Chief Executive Officer, who chairs the committee, on key agency decisions and recommendations to Board of Directors. The Executive Committee makes executive, agency-level policy decisions, provides overarching Authority strategy and priorities, resolves escalated disputes and approves staff agenda items for upcoming board meetings.

Administrative Committee – provides governance and oversight of human resources, IT, communications, employee engagement, business decisions, and administrative functions and facilities outside of program delivery. It ensures effective and prudent administration and support to the entire Authority.

Business Oversight Committee (BOC) – provides programmatic acquisition strategy, procurement governance and commercial oversight. It acts as the program baseline configuration-management control board and approves all changes of scope, timeline and budget to any program element within the program baseline cost estimate. This committee ensures program baseline compliance to federal and state regulations and statutes. The BOC also approves any program execution or fiscal request presented to the Board of Directors. The BOC will forward issues requiring escalation for resolution to the Executive Committee.

Program Delivery Committee (PDC) – provides governance and oversight of the Authority's programmatic execution and performance. The PDC is accountable for all aspects of program development and delivery in accordance with the program baseline cost estimate, including scope, schedule and adherence to budget. This committee surveils the program opportunities and risk impacts to the program baseline, and reports on trends accordingly. The PDC advises the Board of Directors, the CEO and the Executive Committee regarding program execution and performance.

Risk Management Office

The Risk Management Office identifies potential risks, and respective mitigation plans and actions. These items are documented in the Program Risk Register, reviewed with management and used as the basis of reporting.

The Risk Management Program's objectives are to:

- Codify the process by which the Authority responds to circumstances that could significantly delay or halt progress
- Increase transparency regarding challenges to project plans and objectives
- Capture project opportunities
- Satisfy legal and regulatory requirements and meet the needs and expectations of other stakeholders
- Rationalize allocation of resources including cost and schedule contingencies
- Assist in the preparation and implementation of risk mitigation plans for the identified program-wide risks

A revised Risk Management Plan (RMP) was submitted to the FRA in 2017. The RMP defines the Authority's risk management policy, the processes to be used to execute the Risk Management Program effectively and the means to judge the quality of deliverables. This RMP updated and formalized procedures for identifying, assessing, evaluating, documenting, and managing risks that may eventuate in the project. These include specific engineering, environmental, planning, ROW, procurement, construction, organizational, stakeholder, budget and schedule risk, and any other potential issues.

The RMP contains several key elements and deliverables:

- Roles and responsibilities for risk management, including the process by which the Authority will identify and quantify project risks, implement and track risk response activities, and monitor and control risks throughout the duration of each project.
- Quantification of the effect of identified risks in financial terms.
- Documents that track identified risks and related mitigation steps.
- Schedule and plans for capital cost and support cost updates.
- Schedule and plans for reassessing reserves for potential claims and unknown risks, the incorporation of information related to risks identified and quantified through risk assessment processes.
- Schedule and plans for integrating estimates for capital, support costs, and contingency reserves in required report.

The RMP also defines the standards that are part of the approval process for risk management deliverables:

- Deliverables are presented within a substantively complete and appropriate engineering or project management context.
- Deliverables are appropriately quantified, fully integrated, traceable and consistent, and compatible with findings or stated facts.
- Where risk management deliverables are qualitative in nature, they are properly structured and clearly identified with respect to authorship.

- Material analytic results of risk analysis are capable of independent analysis or reproduction using established methods and assumptions generating similar analytic results within an acceptable degree of imprecision or error.
- Funding agencies can assess whether it is appropriate to question the adequacy, accuracy and completeness of the third-party data, information, modeling or analysis.

Looking Forward

The Authority will continue to proactively identify risks and implement mitigations as significant CVP construction continues, and as environmental documents are completed on the Phase 1 system. The Authority has recently expanded the process for risk identification to include input from the FRA through an integrated risk review process. Including expertise from various perspectives will improve risk identification and allow for broader perspectives on risk mitigation.

The Authority has identified several key risk areas as part of the most recent risk register updates undertaken in July 2018. Key risk areas can vary over time based on an individual section's design or construction phase. Risk reviews and mitigation management are conducted regularly. The Authority and the FRA are currently conducting a comprehensive review in support of the revision of the program baseline capital cost estimate being conducted this fall. The Authority has adopted management strategies and mitigations to address the following key current risks, which are summarized below and described in greater detail in **Appendix 4** and **Appendix 5**:

- Program Risks
  - Financing and Funding
  - Legal and Litigation
- Construction Risks
  - ROW Acquisition Delays
  - Environmental
  - Third Party Agreements
- Technical Risks
  - Engineering and Environmental
  - Alignments Passing through Energy Project Areas
  - Availability of Traction Power Substations to Supply Power for Operations

D. Costing Methodology

The Finance Plan(s) shall document projected capital and operating costs and revenues, and detail key assumptions and methodologies.

FRA REQUIREMENT	HOW REQUIREMENT IS MET
Projected capital costs	See **Capital Cost Estimate.**
Key methodologies	See **Methodology. Exhibit D-1** provides an overview of the process by which the Authority developed the budget for the CVP. Additional details are available in the incorporated **Capital Cost Basis of Estimate Report** on pages 11-18.
Key assumptions	See **Assumptions**. Assumptions are set forth in detail in the incorporated **Capital Cost Basis of Estimate Report** on pages 19-20. A link to that technical memo is below.

Overview

The **2018 Business Plan Capital Cost Basis of Estimate Report** provides an overview of the estimating approach, methodology, and assumptions that serve as the basis for the updated cost estimates for both the Phase 1 system and the Silicon Valley to Central Valley line (including the CVP).

The same estimation methodology utilized in the 2018 Business Plan was also used in the preparation of the program baseline capital cost estimate presented for the federal project in the FCP – June 30, 2018.

The Basis of Estimate report summarizes how the estimates are organized and presented, identifies specific changes to the estimates as compared with those presented in prior plans, and describes the basis and key drivers of these cost changes. The report also describes the risk analysis approach for calculating high and low range numbers.

Capital costs of this project have evolved as in any major transportation infrastructure project, from early planning and conceptual engineering through preliminary engineering, contract procurement and, ultimately, to final design and construction. As the project scope, alignment, procurement strategies, delivery mode and other key decisions are finalized—and as environmental mitigation and other project components are more accurately specified—capital costs become more certain and risk factors become more defined, supporting contingency modifications and schedule confidence.

This report reflects advancements in the development of the program resulting in the Authority's decision to prepare a comprehensive update to the program baseline capital cost estimate. The following considerations and developments have influenced the updated capital cost estimates.

Final design of the CVP, the 119-route-mile segment between Madera and Poplar Road in Shafter (just north of Bakersfield), has been advanced to between 65 percent and 100 percent.

The Authority began construction of the CVP before securing all needed right-of-way and completing all required third-party agreements. Predictably, this decision led to unavoidable construction delays. The updated 2018 cost estimates and schedule reflects these delays and resulting increased construction costs.

The current estimates include all executed contract amounts and approved amendments for Construction Packages 1, 2-3 and 4 in the Central Valley, reflecting the actual costs incurred, including currently projected cost of utility relocations and property acquisition, and the on-going civil construction costs in the Central Valley.

Certified professional estimators, senior project staff and third-party industry professionals performed detailed independent review of the capital cost estimates, resulting in validation of the Authority's estimating approach and methodology.

Contingencies were established based on further project definition and risk analysis.

Capital Cost Estimate

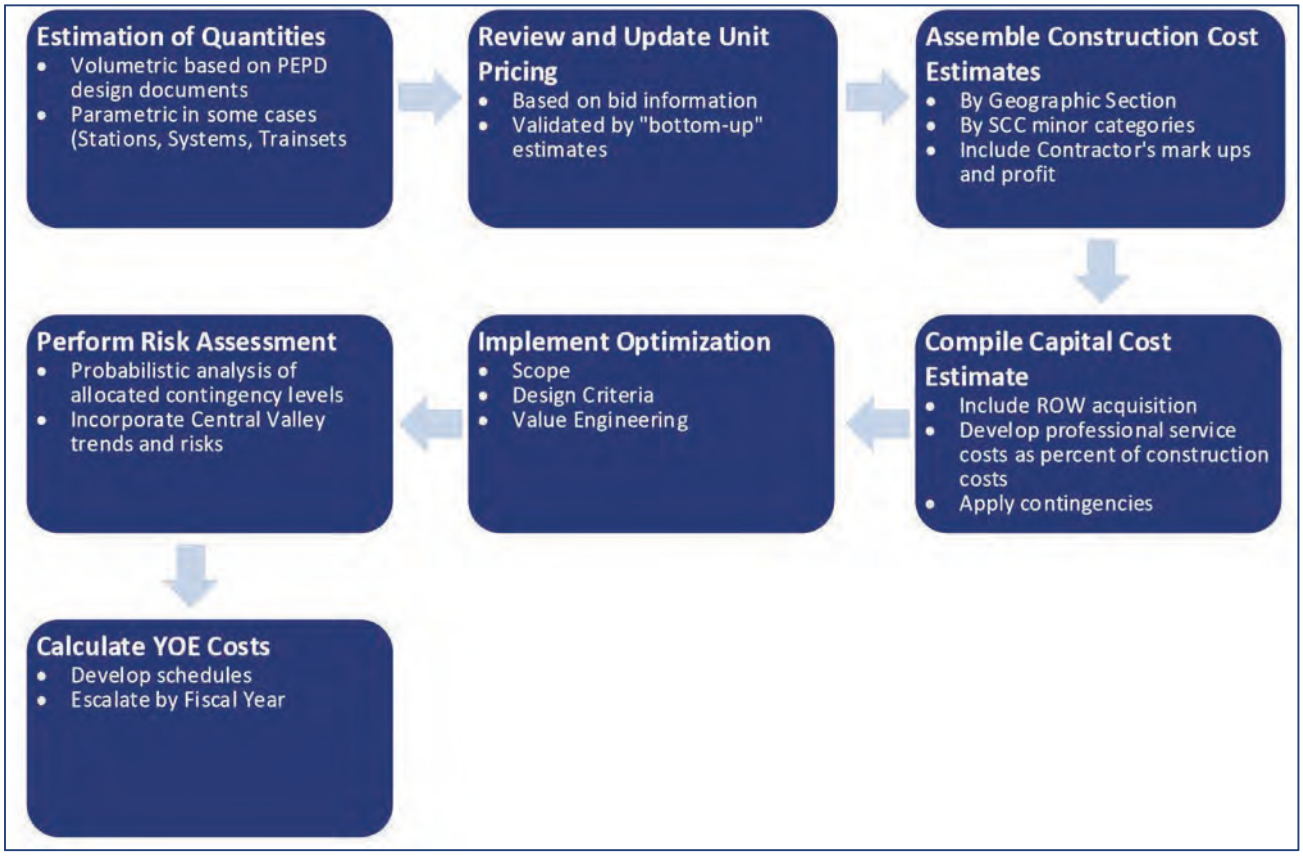
The detailed capital cost estimate summary as well as assumptions described herein can be found on the Authority's website in the 2018 Business Plan Capital Cost Basis of Estimate Report: https://www.hsr.ca.gov/docs/about/business_plans/2018_Business_Plan_Basis_of_Estimate.pdf

In addition, **Exhibit B-2** in **Section B** lists the detailed CVP capital costs by FRA task category.

Methodology

Development of the updated program baseline capital cost estimate is a multi-step process including engineering analysis of construction quantities, development of unit pricing, estimation of project implementation costs and escalation to the year of expenditure (YOE). **Exhibit D-1** depicts the main activities and their sequence leading to development of the updated program baseline cost estimate. Additional details are set forth in the Capital Cost Basis of Estimate Report on pages 11-18.

Exhibit D-1. Development of CVP Program Baseline Capital Cost Estimate



Source: 2018 Business Plan Capital Cost Basis of Estimate Report, Page 11 of 34

Assumptions

The estimate is based upon the latest information available from several different sources. In general, the following sources have been used:

- 2018 Business Plan Implementation Plan
- Adopted Supplemental Alternatives Analysis or work done supporting environmental analysis
- Preliminary Engineering for Project Definition Reports, including drawings and quantities developed by the Regional Consultants
- Material cost and inflation data from Moody's, Caltrans, the U.S. Bureau of Labor Statistics, and the U.S. Department of Energy
- Industry and peer reviews
- Value engineering and constructability reviews

Preliminary engineering estimates have reached a higher level of detail as part of environmental review. Estimates at Completion were prepared for the CP 1, CP 2-3. CP 4 and SR99 contracts and utility relocation contracts. Other general assumptions include:

- Estimate assumes 2017 right-of-way costs.
- Estimates are based on quantities for track and track structures, stations, maintenance facilities,

utilities, roadway grade separations, and railway systems (traction power, overhead catenary, communications and train control).

- Includes allowances for professional services based on estimated construction costs in each segment.
- Estimate includes CP 1, CP 2-3 and CP 4 current contract amounts and approved change orders through September 2017
- Allocated contingencies in the range of 10-50 percent of the construction costs as noted in Table 6 Appendix C of the Basis of Cost Estimate Report.
- Unallocated contingency is 5 percent of the construction cost, except where adjusted to reflect approved project contingencies and change orders for CP 1, CP 2-3 and CP 4.

Exclusions:

- Costs associated with Authority administration
- Finance charges

Additional details regarding the assumptions supporting the cost estimates is set forth in the Basis of Estimates Report at pages 11-18.

Unallocated Contingency

The CVP capital cost estimate budgets unallocated contingency at $425.9 million, and assumes this amount is funded by additional state match sources. Unallocated contingency can be used to fund as-needed items, including contract price and scope changes resulting in change orders needed to advance the CVP. Access to these funds requires review and preliminary approval from the Business Oversight Committee and Program Delivery Committee previously referenced in this document, as well as final approval from the Authority Board of Directors.

Looking Forward

As the construction of the CVP advances, the Authority will periodically update capital cost estimates to reflect the latest payments made and invoices received, procurements, and material cost data. The Authority is currently working on a revised program baseline capital cost estimate, which will be presented in the March 2019 Program Update to the California Legislature. As information on this new estimate becomes available, the Authority will proactively communicate any changes and the results of refreshed analyses to the FRA through the quarterly FCP submission process and through other avenues such as on-going discussions and briefings.

E. Interim Use Project Reserve

The Finance Plan(s) shall address the financial soundness of the reserve scenario in the event the state of California pursues interim use of the new infrastructure.

FRA REQUIREMENT	HOW REQUIREMENT IS MET
Financial soundness of the reserve scenario	This is addressed below, see **Financial Soundness and Looking Forward.** The Authority is currently undertaking analysis to confirm the adequacy of the Interim Use Project Reserve for the preferred interim use scenario.
Conditions for interim use of infrastructure	This is addressed below, see **Understanding of Interim Use Operations Requirements** and **Current Interim Use Concept**. The Authority is currently undertaking work in analyzing infrastructure requirements for the preferred interim use concept between Madera and Poplar Avenue, as an update was last prepared as part of the revised FCS Utilization Plan in 2016.

Overview

The grant agreements contain provisions for an Interim Use Project Reserve (Task 9). Use of reserve funds is dependent upon FRA approval. The reserve was established to cover costs to ensure intercity rail service (interim use) on the CVP. Cost elements could include track connections and associated communications and signaling, interim stations, operations control, and maintenance.

Interim use is defined as contingency operations that would allow connectivity to existing railroad corridors to allow conventional rail service on the CVP prior to/instead of high-speed rail service.

This is differentiated from **early service operations** (early high-speed rail service on the CVP infrastructure). Early service is a separate concept that is currently being studied by the Authority, but is not included in the Authority's definition of interim use.

Current Budget and Funds Remaining

The Interim Use Project Reserve task is broken into two subtasks: Task 9.1 Project Reserves and Task 9.2 Interim Use Reserve.

- Task 9.1 has been budgeted at $46.3 million. This task is reserved for budgeted, but unallocated, costs over and above unallocated contingency
- Task 9.2 has been budgeted at $161.9 million. This task is for infrastructure elements that may be necessary to initiate independent utility and interim use service on the CVP (generally between Madera and northern Kern County).

The Interim Use Project Reserve was originally 100% federally funded with no state match attached to this allocation. However, the reserve fund allocation underwent a restructuring in the ARRA Amendment 6 process and included permission for the Authority to use $53.9 million of reserve funds (funded via ARRA

grant funds) to purchase radio spectrum – a communications system for the entire system. The amendment process also included a contribution of $46.3 million in state funds to the Interim Use Project Reserve.

As documented in **Exhibit E-1** and **Exhibit E-2** below, there is $154.3 million remaining in Task 9:

- Task 9.1 Project Reserve: $46.3 million remaining (to be funded by state funds)
- Task 9.2 Interim Use: $108.0 million remaining (to be funded by FY10)

Only Task 9.2 has been drawn upon to date, with ARRA funds of $53.9 million supporting the radio spectrum purchase fully expended as of June 30, 2018.

Exhibit E-1. Interim Use Project Reserve – Expended and Remaining – FCP for Period Ending June 30, 2018

Task 9 Balance	FY10 (million)	ARRA (million)	State (million)	Total (million)
Expended	-	$53.9	-	$53.9
Remaining	$108.0	-	$46.3	$154.3
Total	**$108.0**	**$53.9**	**$46.3**	**$208.1**

Exhibit E-2. Interim Use Project Reserve by Funding Source – FCP for Period Ending June 30, 2018

Task 9 Breakdown	FY10 (million)	ARRA (million)	State (million)	Total (million)
Task 9.1 Project Reserve	-	-	$46.3	$46.3
Task 9.2 Interim Use	$108.0	$53.9	-	$161.9
Total	**$108.0**	**$53.9**	**$46.3**	**$208.1**

Understanding of Interim Use Operations Requirements

The Interim Use Project Reserve funds would be needed to establish independent conventional rail operations on the CVP if it appears high-speed rail revenue service will be significantly delayed. Expenditure of these funds is subject to FRA approval and may only be used for the construction infrastructure necessary to initiate operations on the CVP funded under the grant.

The amount established in the Interim Use Reserve Fund is an estimate of the funds required to implement contingency operations including track, signal and communications elements, stations, operations control, and a limited maintenance facility as described in the FCS Utilization Plan drafted in June 2013, and updated in 2016. This plan describes the infrastructure that would be necessary to allow connectivity to existing railroad corridors to allow conventional rail service on the CVP prior to/instead of high-speed rails service.

Prior to the release of procurement documents or bids for track, signals, or other system elements (i.e., beyond civil and structural infrastructure), and if the FRA determines that there will be a significant delay in completing the investments needed to begin initial high-speed rail revenue service on an initial operating segment that includes the CVP, the FRA may direct the Authority to use the Interim Use Reserve Funds to build any required capital investments necessary for an interim alternative that will ensure operations on the CVP for the minimum term of 20 years. Upon such a determination by the FRA, and prior to letting any contracts necessary to implement the FRA-approved interim use alternative, the Authority shall ensure operating and financial commitments are secured by the appropriate governmental agencies and/or private entities that would construct and operate such contingency use alternatives.

Current Interim Use Concept

The Authority's current interim use concept identifies electrified service between Madera Acres and a temporary station north of Bakersfield as a potential contingency operations alignment should the need arise to implement such a plan. Under this high-level concept, regional rail partners will utilize the CVP infrastructure to operate conventional rail services. It is anticipated that passengers will access these rail services at an interim station at Madera Acres and at a temporary station on Poplar Avenue north of Bakersfield. The selected interim use alternative will be administered at the direction of CalSTA as a non-high-speed rail service in coordination with regional rail partners.

This interim use concept and alignment was first detailed in the draft FCS Utilization Plan submitted to FRA in 2013, and updated in 2016 as part of the revised FCS Utilization Plan. To reflect program changes since 2016, the Authority is currently analyzing and reevaluating infrastructure requirements for this interim use concept.

Financial Soundness and Looking Forward

The current interim use concept covers a corridor similar to the option developed in the 2016 plan. While the Authority believes the interim use reserve sufficient for the preferred alternative given the similarities with the previous plan, in order to incorporate updated assumptions developed since the 2016 plan, the Authority is undertaking further analysis. The Authority will communicate any changes to the FRA once this work is complete.

Separately, the Authority is working on an independent study with the Early Train Operator on potential early high-speed rail services on CVP infrastructure, which could occur as early as 2026. While early service is not included in the Authority's definition of interim use, this study could have the potential to impact the Authority's operations strategy moving forward. The Authority currently anticipates the early service study to conclude by December 2018, with findings incorporated in the Authority's next Project Update Report in March 2019. The Authority looks forward to future discussions with the FRA on the outcomes of the early service study, and any implications the separate early service concept would have on the Authority's preferred interim use / contingency operations scenario.

Appendix 1 – Prop 1A

"Safe, Reliable High-Speed Passenger Train Bond Act for the 21st Century"

(AB 3034 – Chapter 267 – Statutes of 2008)

http://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=200720080AB3034

Appendix 2 – California State Budget Process

State Budget Process Overview

The Governor's budget is the result of a process that begins more than one year before the budget becomes law. Capital Outlay Budget Change Proposals (COBCPs) are documents that propose to modify or change funding levels, existing level of service, propose new programs or delete existing programs. These documents are prepared by agencies/departments and submitted to the Department of Finance (DOF). This process starts in July with Budget Concept Statements, which are internal documents utilized to gather data, document research and present requests in a manner consistent with the COBCP format. The concepts are then evaluated by departmental management and either approved or denied for submission to the California State Transportation Agency (CalSTA) for consideration. The process concludes in September when all requests are submitted to DOF for review and determination of requests. Approved requests are incorporated into the Governor's budget.

The California Constitution requires the Governor to submit a budget to the Legislature by January 10 which includes an explanatory message and provides a budget for the ensuing year with itemized expenditures and revenues. By constitutional requirement, the Governor's budget must be accompanied by a Budget Bill itemizing recommended expenditures which shall be introduced in each house of the Legislature. The Constitution also requires that the Legislature pass the bill by June 15. The Senate Budget and Fiscal Review Committee and the Assembly Budget Committee are the two committees that hear the Budget Bills. These hearings generally begin in late February soon after the Legislative Analyst issues the Analysis of the Budget Bill.

The DOF can also propose adjustments to the Governor's budget through Finance Letters in the spring. By statute, the DOF is required to give the Legislature all proposed adjustments to the Governor's budget by April 1. The traditional May Revision adjustments are due by May 14, and consist of an update of general fund revenues and changes in expenditures for school funding requirements pursuant to Prop 98, caseload, enrollment, or population. The Legislature typically waits for the May Revision update before final budget decisions are made on major programs such as education, corrections, and health and human services.

When the Budget Bill receives a majority vote of each house, it is passed on to the Governor. The Constitution allows the Governor to reduce or eliminate an item of appropriation.

There are generally budget changes proposed by the Governor or the Legislature which necessitate changes to existing law in order to implement the budget changes. If this is the case, separate bills are introduced to implement the change. These budget implementation bills are called trailer bills and are heard concurrently with the Budget Bill. By law, all proposed statutory changes necessary to implement the Governor's budget are due to the Legislature by February 1.

The Budget Act is the primary source for appropriations. Continuous statutory appropriations and special legislation also provide expenditure authority.

Departments have the primary responsibility to operate within budgeted levels and to comply with any restrictions or limitations enacted by the Legislature. Further, the general expectation is that State agencies comply with the legislative intent.

Process for Budget Augmentation

Although the general expectation is to conform to the enacted budget, the Legislature has recognized a need to establish some flexibility to adjust budgets. For example, the statutes provide a continuous appropriation for allocations by the Director of Finance to meet expenditures resulting from natural disasters for any emergency proclaimed by the Governor. The Legislature has also provided provisions in the Budget Act to allow for budget adjustments, which requires Director of Finance approval; many require a formal notice to the Legislature and a waiting period to provide the opportunity for legislative review and response before final approval. Budget Act provisions to allow adjustments include authorizations for:

- Changes to federal funding levels
- Deficiencies
- Changes to reimbursements
- Intra-item transfers

The DOF approves budget changes using Budget Revisions and Executive Orders. These changes are transmitted to the SCO, which maintains the statewide appropriation control accounts.

The Governor has certain powers to adjust expenditures. Although these powers do not permit for adjustment of appropriations, the expenditure plan may be changed. For example, past Governors have issued Executive Orders to implement hiring and equipment purchase freezes and delayed capital expenditures. Under emergency conditions, the Governor is also authorized to direct State resources to meet emergency needs.

Listed below are mechanisms, including descriptions and additional provisions, departments can utilize to augment their appropriations.

Section 26.00 – Intra-Schedule Transfers

Section 26.00 authorizes the transfer of funds from one line to another within the schedule of an appropriation. The amount of the transfer is limited in provisions (c) 1-4. However, provision (e) provides that transfers exceeding these limits may be authorized, but not sooner than 30 days after notification in writing of the necessity to exceed the limitations is provided to the Legislature. The following also applies to Section 26.00 adjustments:

- Intra-schedule transfers for capital outlay purposes are prohibited, regardless of whether budgeted in a capital outlay or local assistance appropriation.
- Intra-schedule transfers are allowed for support and local assistance type purposes.
- Transfers may not establish or eliminate a program, project, or function.
- Any transfer in excess of $200K requires advance reporting to the Legislature.

DOF is required to report all budget adjustments authorized pursuant to Section 26.00 annually at the end of the fiscal year to the Legislature.

Section 28.00 – Augmentation for Receipt of Non-State Funds

Section 28.00 authorizes DOF to approve augmentations for the expenditure of unanticipated funds received from the federal or local governments or any other non-state entity. For purposes of this Section, unanticipated means those instances when receipt of the funds could not reasonably have been foreseen at the time of the development of the Governor's budget or the submission of Spring Finance Letters for inclusion in the budget for the ensuing fiscal year. DOF may also reduce any program, project, or function if funds will not be received as anticipated.

Section 28.00 does not provide an appropriation. Augmentations approved pursuant to Section 28.00 involve adjustments of moneys which already have been appropriated.

To receive consideration for an augmentation, departments must either notify DOF within 45 days of receiving official notification of additional funds or provide written explanation to DOF why the 45-day notification requirement could not be met. In either case, the department must provide DOF a copy of the official notice of fund availability.

Regardless of the source of the additional funding, any augmentation that exceeds either $400K or 10 percent of the amount available for expenditure in the affected program, project, or function must be reported to the Legislature. The notification to the Legislature must include the date the department received official notification of additional funds and a copy of the department's written explanation of delayed notification to DOF if the 45-day requirement could not be met.

Section 28.00 augmentations must also meet the following four criteria, and this information must be included in the notification to the Legislature:

- The funds will be expended for a purpose that is consistent with state law.
- The funds are made available to the state under conditions permitting their use only for a specified purpose, and the additional expenditure proposed under this section would apply to that specified funding purpose.
- Acceptance of the funds does not impose any requirement to commit or expend new state funds.
- The need exists to expend the additional funding during the current fiscal year.

Appendix 3 – Extract of SB 862 and AB 398 Cap-and-Trade Program Language

SB 862

SB 862 added Health and Safety Code Section 39719 and 39719.1 to state law that increase funding of the High-Speed Rail Program. Key provisions appear below.

SEC. 7. Section 39719 is Added to the Health and Safety Code, to Read:

39719. (a) The Legislature shall appropriate the annual proceeds of the fund for the purpose of reducing greenhouse gas emissions in this state in accordance with the requirements of Section 39712.

(b) To carry out a portion of the requirements of subdivision (a), annual proceeds are continuously appropriated for the following:

(1) Beginning in the FY 2015–16, and notwithstanding Section 13340 of the Government Code, 35 percent of annual proceeds are continuously appropriated, without regard to fiscal years, for transit, affordable housing, and sustainable communities programs as follows:

(A) Ten percent of the annual proceeds of the fund is hereby continuously appropriated to the Transportation Agency for the Transit and Intercity Rail Capital Program created by Part 2 (commencing with Section 75220) of Division 44 of the Public Resources Code.

(B) Five percent of the annual proceeds of the fund is hereby continuously appropriated to the Low Carbon Transit Operations Program created by Part 3 (commencing with Section 75230) of Division 44 of the Public Resources Code. Funds shall be allocated by the Controller, according to requirements of the program, and pursuant to the distribution formula in subdivision (b) or (c) of Section 99312 of, and Sections 99313 and 99314 of, the Public Utilities Code.

(C) Twenty percent of the annual proceeds of the fund is hereby continuously appropriated to the Strategic Growth Council for the Affordable Housing and Sustainable Communities Program created by Part 1 (commencing with Section 75200) of Division 44 of the Public Resources Code. Of the amount appropriated in this subparagraph, no less than 10 percent of the annual proceeds, shall be expended for affordable housing, consistent with the provisions of that program.

(2) Beginning in the FY 2015-16, notwithstanding Section 13340 of the Government Code, 25 percent of the annual proceeds of the fund is hereby continuously appropriated to the High- Speed Rail Authority for the following components of the initial operating segment and Phase I Blended System as described in the 2012 business plan adopted pursuant to Section 185033 of the Public Utilities Code:

(A) Acquisition and construction costs of the project.

(B) Environmental review and design costs of the project.

(C) Other capital costs of the project.

(D) Repayment of any loans made to the authority to fund the project.

(c) In determining the amount of annual proceeds of the fund for purposes of the calculation in subdivision (b), the funds subject to Section 39719.1 shall not be included.

SEC. 8. Section 39719.1 is Added to the Health and Safety Code, to Read:

39719.1. (a) Of the amount loaned from the fund to the General Fund pursuant to Item 3900-011-3228 of Section 2.00 of the Budget Act of 2013, four hundred million dollars ($400,000,000) shall be available to the High-Speed Rail Authority pursuant to subdivision (b).

(b) The portion of the loan from the fund to the General Fund described in subdivision (a) shall be repaid to the fund as necessary based on the financial needs of the high-speed rail project. Beginning in the FY 2015-16, and in order to carry out the goals of the fund in accordance with the requirements of Section 39712, the amounts of all the loan repayments, notwithstanding Section 13340 of the Government Code, are continuously appropriated from the fund to the High-Speed Rail Authority for the following components of the initial operating segment and Phase I Blended System as described in the 2012 business plan adopted pursuant to Section 185033 of the Public Utilities Code:

(1) Acquisition and construction costs of the project.

(2) Environmental review and design costs of the project.

(3) Other capital costs of the project

(4) Repayment of any loans made to the authority to fund the project.

AB 398 Extension:

AB 398 (Garcia), signed into law on July 25, 2017, provided an extension to the Cap-and-Trade program through December 31, 2030.

Appendix 4 – Summary of Funding Sources, Appropriations, Risks, and Risk Mitigations

American Recovery and Reinvestment Act (ARRA)

Appropriations

ARRA funding has been provided through Federal Grant FR-HSR-0009-10-01-00 and has been used for pre-construction on Phase 1 and for construction costs on the CVP. Funds were appropriated through SB 1029, a State Budget Act passed by the California State Legislature and signed by the Governor in 2012, authorizing expenditure of federal ARRA grant funding. All ARRA funding was expended by the September 2017 deadline set by the Federal Railroad Administration (FRA).

Risks

FRA is reviewing Authority invoices for ARRA eligibility and may exclude specific items that were identified by the Authority as meeting the state match requirement. This review process is on-going and anticipated to last through the end of the state match period. A protracted process to resolve differences between the Authority and FRA could impact team resourcing to support the state match process and have consequences on budget planning. On a related front, although Prop 1A bond proceeds have already been received by the Authority, if additional state matching contributions are required to meet federal requirements, there is a risk that sufficient additional Prop 1A proceeds may not be available for this purpose.

Risk Mitigations

The table below presents current or future risk mitigation actions to address the above risks.

Risk Mitigation Actions		
#	**Description**	**Status**
1	The Authority is working collaboratively with the FRA to facilitate this review by holding regular meetings and submitting additional documentation to validate the state match.	On-going
2	In order to mitigate the possibility of extended negotiations, the Authority has currently prioritized the submission of State match items that the FRA has previously flagged as lower risk.	On-going
3	If future Prop 1A funding becomes unavailable as additional contributory state matching funds for the ARRA funding, the Authority will be able to utilize appropriated Cap-and-Trade funds in its place - see **Cap-and-Trade Revenues Overview** in **Section A**.	Complete (See **Section A**)
	Other Potential Mitigation Actions or Mitigating Factors	
A	The State has adequate Cap-and-Trade and Prop 1A reserve funding in place to ensure the CVP is fully funded and completed.	

FY10 Funding

Appropriations

Funding has been provided through Federal Grant FR-HSR-01118-12-01-01 and is being used for construction activities on the CVP. These funds were also appropriated under SB 1029, state budget legislation passed by the California State Legislature and signed by the Governor, authorizing expenditure of federal grant funding in the amount of $928.6M for construction of the CVP.

Risks

Risks to FY10 funding includes the Authority's ability to expend current Prop 1A funds at a sufficient pace to enable access to FY10 funds within the Period of Performance.

Risk Mitigations

The table below presents current or future risk mitigation actions to address the above risks.

Risk Mitigation Actions		
#	**Description**	**Status**
1	The Authority has undertaken a comprehensive reevaluation of the costs and schedule to complete work on the CVP as part of the recently approved baseline cost estimate. Additionally, the Authority is actively managing construction contracts to ensure that the forecasted monthly burn case can increase to the level required.	Complete
2	With the State match prioritization on ARRA expenditures, the identification of further State match funds may be needed to access FY10 funding. The Authority has anticipated this possibility by selling over $2.6 billion in Prop 1A bonds to date. In addition, the State has also secured a back-up source of State funding in the form of Cap-and-Trade revenues should Prop 1A become unavailable for any reason.	Complete
3	Per the FCP through June 2018, there is sufficient time build into the schedule to accommodate slower than forecast expenditures and allow access to FY10 to move back in time. There is however, a limit to this and the Authority is actively working to accelerate construction spend.	In Progress
	Other Potential Mitigation Actions or Mitigating Factors	
A	The updated capital cost will be reviewed in March 2019 to inform more accurate and detailed estimates on completion.	

Prop 1A

Appropriations

Prop 1A was passed by voters in 2008, creating a $9 billion dedicated source of funding for California High-Speed Rail. The California Legislature appropriated Prop 1A bond proceeds in the amounts of $2.609 billion for Central Valley construction, and $574.8 million for program-wide project development costs. The Authority is actively analyzing opportunities for early access to the remaining Prop 1A funds.

Risks

Legal action may delay the future appropriation of Prop 1A funds. Heretofore, the Authority has successfully overcome legal challenges associated with the appropriation of Prop 1A funds, including recent findings that have allowed the State Treasurer to sell $2.123 billion in Prop 1A bonds to advance project development, continue construction, and meet federal match requirements since the beginning of FY 2016-2017.

Regardless of legal status, it is possible the California State Legislature, the Governor and/or the DOF may delay or not approve future appropriations of Prop 1A funds requested by the Authority.

Risk Mitigations

The table below presents current or future risk mitigation actions to address the above risks.

Risk Mitigation Actions		
#	**Description**	**Status**
1	The Authority will continue close coordination with the State Attorney General's Office, DOF, and State Treasurer's Office to facilitate sale of Prop 1A bonds on a timely basis to meet project cash flow needs.	On-going
2	The Authority will submit on a timely basis each required Prop 1A funding plan (S&H section 2704.08) to the Legislature and the DOF for approval of future appropriations of state Prop 1A bond funds.	As Needed
3	The Authority has developed a detailed timelines that outline the critical path items needed to secure approval for accessing the remaining Prop 1A funds. This mapping process identified the need to engage stakeholders early in the process and potentially pursue a two-stage approach to bond asks. The Authority envisions funding plans for an initial ask amount of the remaining Prop 1A funds to be submitted as early as 2019. In order to avoid delays in the budget request process, the Authority will proactively discuss and work with the DOF and legislative committees on a Prop 1A access strategy to ensure that required documents are prepared and transmitted in accordance with statute and stakeholder expectations.	On-going
	Other Potential Mitigation Actions or Mitigating Factors	
A	Past litigation has delayed but not prevented the sale of Prop 1A bonds.	

Cap-and-Trade

Appropriations

The Cap-and-Trade program was established through AB 32. Appropriation of Cap-and-Trade Revenues was approved in the FY 2014-15 budget cycle, through SB 862, which continuously appropriated 25 percent of Cap-and-Trade revenues to the Authority. AB 398, which was signed into law in July 2017, extended the Cap-and-Trade Program through December 2030.

Risks

The primary risk to Cap-and-Trade funding is that receipts will be lower than forecast. Because Cap & Trade is an auction based revenue source that is contingent upon market factors it is not possible with certainty to predict what the results of any auction might be. This makes planning for projects that include Cap-and-Trade as a revenue source challenging because of the uncertainty of future receipts.

The Authority has forecasted what potential future receipts from the Cap-and-Trade program could be. If these differ significantly from plan, the Authority may not have enough funds to fund Additional State Match, as presented in thee FCP with those funds. In that case it will need to use Prop 1A funds to make up the difference. Access to future Prop 1A funding could be more challenging (as described in the Prop 1A section).

Additionally, the Authority has also committed certain amounts of Cap-and-Trade funds to projects outside of the CVP. If Cap-and-Trade receipts are lower than forecast, the Authority will have to prioritize funding allocations.

Risk Mitigations

The table on the following page presents current or future risk mitigation actions to address the above risks.

Risk Mitigation Actions		
#	**Description**	**Status**
1	The Authority continues to monitor Cap-and-Trade auction results and actively manages commitments of Cap-and-Trade funds based on conservative estimates. To date the Authority has received the following one-time Cap-and-Trade appropriations on top of the continuous appropriations from quarterly Cap-and-Trade auction proceeds. • $250 million, one-time appropriation in CA Budget Act of 2014 • $400 million, one-time appropriation in CA Budget Act of 2014 on loan to the General Fund For planning purposes as documented in the 2018 Business Plan, the Authority has assumed average annual receipts of $750.0 million in the fiscal years moving forward, with annual receipts expected to increase over time. This assumption is supported by California's Legislative Analyst's Office (LAO), which published the *Cap-and-Trade Extension: Issues for Legislative Oversight* report in December 2017. The report notes a low and a high revenue scenario, which result in the Authority's share of expected revenues ranging from $500 million to $1 billion in 2018 and from $500 million to $1.7 billion by 2030. On a cumulative basis, this range is from $7.1 billion to $18.4 billion through 2030.	On-going

	As shown in **Exhibit A-5,** the four most recent quarterly auctions have resulted in elevated proceeds (totaling $766.7 million) when compared to prior years, with the Authority receiving $215.7 million in November 2017, $181.7 million in February 2018, $169.8 million in May 2018, and $199.5 million in August 2018.[3]	
2	Through periodic sources and uses modeling and cash management analysis, the Authority has strong controls in place to identify the magnitude of currently available funding relative to funds already committed. As part of the funding allocation process, the Authority takes into account current position and anticipated sources and uses in order to ensure that priority projects such as the CVP are funded and that there is adequate funding in place to complete other procured contracts and agreements.	On-going
3	If Cap-and-Trade became unavailable or was significantly below projections, the Authority could use Prop 1A to fill any gaps in required revenues. This would be limited to the amount of Prop 1A that was unexpended or otherwise not committed to other system sections.	On-going

Local Funding

Appropriations

The Authority anticipates $52.1 million in local match funds will be used for specific system-wide preconstruction activities and station planning in Northern California, the Central Valley, and Southern California.

Risks

The Authority is currently working with local partners on a strategy for the disbursement of the remaining funds. The primary risk is that local partners may decide not disburse previously agreed to funds, that were reached as part of prior memorandums of understanding.

Risk Mitigations

The table below presents current or future risk mitigation actions to address the above risks.

Risk Mitigation Actions		
#	**Description**	**Status**
1	The Authority has initiated on-going discussions with local partners on strategy and timing for the $52.1 million in local funds. If these funds cannot be accessed, Prop 1A receipts and Cap-and-Trade can be used to satisfy any funding gaps.	On-going

[3] Cap-and-Trade figures reflect auction proceeds through August 2018

Appendix 5 – Top Risks

Risk ID	Discipline	Date	Rating	
			Current	Prior
PW-PW-072	ROW	July 30, 2018	3	5

Risks

Description: Delays to acquisition of additional right-of-way (ROW) required for the Central Valley Segment (CVS) contracts may impact the construction schedule, based on the contractor proposed Alternative Technical Concepts (ATCs) and design developments. This has the potential to impact cost estimates to complete.

Risk Background Information: Additional ROW parcels will be required for the CVS contracts (CP 2-3 and CP 4) due to approved Alternative Technical Concepts (ATC) and design development. Once Authority approves the design changes, contractually the Authority will have to deliver additional ROW parcels within 12 months. Actual delivery of certain parcels may take longer due to relocation or needing to utilize the condemnation process as a result of unwilling sellers.

Risk Mitigation Actions

#	Action Description	Status
1	Monitor parcel acquisitions to identify and resolve delivery bottlenecks.	On-going
2	Develop ROW acquisition strategy to mitigate delays associated with potential design or alignment changes.	Complete
3	Partner with the contractors to review, re-sequence, or accelerate work as necessary.	In Progress
4	Use the currently anticipated project critical paths to set priorities and focus as much effort as possible toward those targeted properties.	In Progress

Other Potential Mitigation Actions or Mitigating Factors

Additional ROW Risk is limited by: a) The Contract requirement for the Contractor to submit information needed for acquisition and for any environmental reassessment. The latter of these two deliverables starts the 12-month timeline to acquire access; and b) The Contract requirement for the Contractor to begin significant construction only if all parcels are in place.

Rating Change Explanation

In late 2017, the Authority analyzed the claims for CP 2-3 contract and issued a change order to extend the contract completion date by approximately 9 months to account for the slippages that occurred through August 2017.

Risk ID	Discipline	Date	Rating	
			Current	Prior
PW-PW-003	External Third Party	July 30, 2018	3	5

Risks

Description: Delays in obtaining all agreements with railroad partners for the Central Valley, and the increase in the cost of modifications required for railroad partners due to extended negotiations periods. In many segments, third party agreements need to be in place prior to significant construction.

Risk Background Information: Many interface agreements and integration risks are associated with third parties such as UPRR, BNSF, and other railroad agencies, including risks with design, construction methodologies, operational issues related to the joint use of ROW, stations and ancillary facilities, and integration with rail infrastructure and operating companies. The Authority is responsible for providing the Contractors with executed versions of any Railroad Agreements that were not executed prior to contract award.

Risk Mitigation Actions

#	Action Description	Status
1	With BNSF, identify critical ROW areas and establish the agreements: a) Purchase & Sale, b) Relocation & Construction including Insurance & Indemnification (I&I) provisions, c) Master & Joint Corridor agreement, and d) Grade Separation.	Items a-c completed for CP 1
2	With UPRR, identify critical ROW areas and establish the agreements: a) Engineering, Construction & Maintenance, b) Insurance & Indemnification, c) Purchase & Sale, and d) Grade Separation.	Completed a, b, c signed, template developed for d.
3	For CP 2-3 and CP 4 projects, establish remaining agreements: a) Purchase & Sale, b) Grade Separation, and c) Relocation and Construction including I&I provisions.	In progress Templates developed for CP2-3 and CP 4
4	Sign remaining agreements (grade separation agreements) with railroads when Design-Build (DB) contractors complete 100% design of railroad crossings at various locations.	On-going

Other Potential Mitigation Actions or Mitigating Factors

Not applicable at this time.

Rating Change Explanation

Relocation and construction agreements with BNSF for CP 2-3 project are currently in the final stage and ready to be signed. Templates for all agreements have been developed. BNSF has requested to sign the agreements at the 100% design level of BNSF realignments and intrusion protection requirements.

Risk ID	Discipline	Date	Rating	
DC-CP1-267	Construction	July 31, 2018	Current	Prior
			5	New Risk

Risks

Description: Potential for cost increases due to design changes required to comply with enhanced state engineering rules on Mechanically Stabilized Earth (MSE) Wall Design.

Risk Background Information: Caltrans revised their MSE wall design criteria in January 2014 while the contractor continued their design utilizing the old criteria. During the constructability review of designs, the revised criteria was identified and incorporated into the project. In order to meet the revised criteria and to resolve constructability issues, the contractor elected to redesign the abutments as cast-in-place (CIP) and raise a Project Change Order (PCO) for its entitlement to the increased construction cost from MSE to CIP. The Authority believes the contractor's original design failed to meet impact loading requirements and, thereby, would have precluded the contractor's chosen MSE system.

Risk Mitigation Actions

#	Action Description	Status
1	Letter was sent to contractor rescinding any instruction surrounding the MSE wall issue.	Complete
2	Start issue resolution process if the contractor challenges Authority decision.	In Progress

Other Potential Mitigation Actions or Mitigating Factors

Authority to perform a commercial review and analyze appropriate allocation of risk between the Contractor and Authority

Rating Change Explanation

This was a new risk added to the register.

Risk ID	Discipline	Date	Rating	
PW-PW-061	Environmental	July 31, 2018	Current	Prior
			5	4

Risks

Description: Schedule delay or increased project costs due to contractor non-compliance with mitigation and permitting commitments.

Risk Background Information: The language in Design-Build (DB) contract documents is neither specific regarding clearly articulated performance standards nor does it provide for sufficient enforcement of compliance requirements. If the DB contractor is not compliant with environmental commitments, it could weaken the Authority's reputation with regulatory agencies and may delay permitting activities in other sections. In the worst case, lack of compliance could result in a regulatory agency issuing a stop consultation and work order on the project, putting the program in legal jeopardy and/or impacting EIR/EIS approvals.

Risk Mitigation Actions

#	Action Description	Status
1	Engage with FRA to communicate potential non-compliance incidents with Federal & State Agencies and Native American Tribes.	On-going
2	Organize an on-going (quarterly) workshop with contractor to discuss challenges faced with contract environmental compliance, CEQA/NEPA process, and permit issuance process.	On-going
3	Incorporate 'lessons learned' on earlier DB contracts with future ones.	On-going
4	Work with construction staff on improvements to compliance actions and tracking. As part of this process, the Authority will revise the Environmental Mitigation Management and Assessment (EMMA) system to include storm-water construction permitting and to allow mobile access.	Complete
5	Strengthen construction contract compliance or reassign environmental compliance responsibility from construction team to environmental team to better manage compliance violations.	In Progress

Other Potential Mitigation Actions or Mitigating Factors

Continue making improvements to EMMA.

Rating Change Explanation

Developed and implemented an environmental compliance program.

Risk ID	Discipline	Date	Rating	
DC-CP1-003, DC-CP2-031, DC-CP4-004	Engineering/Technical External Third Party	July 31, 2018	Current	Prior
			5	5

Risks

Description: Increased capital costs due to railroads' request for intrusion protection barriers (IPB) and/or detection measures to provide clearance from their ROW property line.

Risk Background Information: BNSF has requested intrusion protection measures of 102 ft. from their property line rather than 102 ft. from their track center-line, as specified in CP 2-3 contract documents, to preserve the ability to construct additional tracks within the full extent of their existing ROW.

At the current 102 ft. spacing requirement between the Authority and BNSF, any additional BNSF track in that zone would require the consideration of intrusion protection measures. Depending on how the barrier design is finalized, there could be significant cost risk in the construction of barriers. The Authority is looking at the mixture between ditch/berm/barriers to ensure safety at appropriate cost levels.

Risk Mitigation Actions

#	Action Description	Status
1	Issue revised Directive Letter/response to RFIs to the Contractor.	In Progress
2	Evaluating pursuing revised criteria with the FRA and railroads to reduce the construction cost of IPB when a barrier wall is utilized. Potential for 25' gaps in wall or a columns-only barrier.	In Progress
3	Authority Engineering, Railroad and Commercial to conduct a meeting to discuss the path forward and develop a new Bulletin in consideration of Intrusion Protection as it relates to BNSF.	In Progress
4	On CP 2-3 and CP4 projects, the Program Delivery Committee (PDC) will monitor Change Order Proposals to ensure that change orders reflect only IPB costs, reasonable prices, and not disputed scope items.	In Progress

Other Potential Mitigation Actions or Mitigating Factors

Authority is working cooperatively with railroads to identify engineering solutions for mitigating the adjacency issues within CP 1 and CP 2-3.

Rating Change Explanation

Although the potential cost of Intrusion Protection Barrier/berms are included in the program baseline cost estimate, the risk is still tracked as various mitigation strategies are currently being employed to reduce the overall cost exposure. The Authority is in the process of revising previous direction and instructing the contractor to build all required IPB instead of deferring.

Risk ID	Discipline	Date	Rating	
PW-PW-053	External Third Party	July 31, 2018	Current	Prior
			3	3

Risks

Description: Delays in testing, commissioning and start of high-speed rail operations due to unavailability of traction power substations to supply power for operations.

Risk Background Information: Electrical interconnections risk - New utility construction or transmission network upgrade required for PG&E and SCE traction power substations. Environmental clearance is on-going but not complete. Risk is that there is a long- term planning, permitting and engineering process for each substation connection to the high-voltage grades (up to 6 years) which could impact testing, commissioning and start-up of operations. Risk is low as it would not affect CVP completion or Silicon Valley to Central Valley line implementation schedule.

Risk Mitigation Actions

#	Action Description	Status
1	Continue discussions with utility agencies (PG&E, SCE, and CPUC) to plan for additional network upgrades.	In Progress
2	Negotiate scope with utility agencies for next contract.	Complete
3	Complete environmental clearances for the traction power substation sites.	In Progress
4	Perform impact analysis study and obtain design, engineering, environmental and construction permits.	In Progress

Other Potential Mitigation Actions or Mitigating Factors

Completion of the CVP is not affected by this risk.

Rating Change Explanation

Rating was reduced due to reassessed electric loads required for testing and commissioning and for initial operations (i.e. 2 trains per hour per direction). This load is 10% of theoretical max load (12 trains/hour/direction) with 9 trains as doable limits) initially provided to PG&E and SCE. PG&E is reassessing, but first review is that minimal PG&E reinforcement required to support 2 trains/hour/direction. Funding for SCE contract to be identified. Risk is low as it would not affect completion of the CVP or Silicon Valley to Central Valley line implementation schedules. All Phase 1 environmental documents to be completed by March 2021.

Risk ID	Discipline	Date	Rating	
DC-CP1-202	External Third Party	July 31, 2018	Current	Prior
			5	New Risk

Risks

Description: Delay potential to the critical path work on CP 1 contract due to the Caltrans Phase II AT&T relocation at Fresno Trench.

Risk Background Information: The current schedule for CP 1 completion shows AT&T utility relocation work at the Caltrans Phase II location as impacting critical path, which is expected to delay construction of the Fresno Trench.

Risk Mitigation Actions

#	Action Description	Status
1	Coordinate and negotiate with AT&T regarding their self-performed work schedule for optimizations, mitigations, and workarounds.	On-going
2	Clear remaining easements from UPRR in order for significant construction to start in certain segments	Complete Remaining easements have been issued
3	Hire independent cable specialist to evaluate overall cut over durations.	Complete

Other Potential Mitigation Actions or Mitigating Factors

Not applicable at this time.

Rating Change Explanation

This was a new risk added to the register.

Risk ID	Discipline	Date	Rating	
DC-CP1-262, DC-CP2-101, DC-CP4-034	ROW	July 31, 2018	Current	Prior
			2	5

Risks

Description: Increased ROW parcel acquisition costs due to additional parcels identified because of design refinements, increased costs of settlements, and higher than expected jury trials ruling.

Risk Background Information: Costs of ROW parcel acquisition for construction packages 1-4 are experiencing upward pressure as a result of contractors' proposed alternative technical concepts and design refinements that required additional ROW takes, additional ROW parcel needs for utility relocations, compressed timeframe to acquire ROW parcels (thereby leading to increased settlement costs), acquisition of excess parcels during settlements, and higher than expected number of parcels acquired by condemnation.

Risk Mitigation Actions

#	Action Description	Status
1	Continue to investigate cost mitigations such as the disposal of remnant parcels and obtaining revenue from leasing remnant parcels, as these opportunities arise.	On-going
2	Reviewing design refinements and utility relocation plans to minimize takings.	On-going
3	Continue to settle property acquisitions through mediation or settlement conferences.	On-going

Other Potential Mitigation Actions or Mitigating Factors

Not applicable at this time.

Rating Change Explanation

The cost overruns are accepted and the 2018 Business Plan incorporated overruns in the ROW acquisition budgets in the program baseline cost estimate. Remaining exposure is reduced as a result.

Risk ID	Discipline	Date	Rating	
DC-CP2-044; DC-CP2-079	Construction/Site External Third Party	July 31, 2018	Current	Prior
			5	New Risk

Risks

Description: Potential delays to CP 2-3 critical path due to BNSF agreement negotiations, PG&E utility relocation and increased cost due to alterations to comply with CDFW requirements.

Risk Background Information: The Construction Package 2-3 contract is facing delays compared to original contract completion work due to the following: delays in completing utilities relocations work by PG&E, delays in BNSF agreement negotiations and possible increased costs due to alterations to comply with CDFW requirements.

Risk Mitigation Actions

#	Action Description	Status
1	Meet with BNSF to mitigate restricted access and blackouts to minimize the impact to the project.	On-going
2	Perform a full schedule analysis of all proposed delays for PG&E work and perform concurrency check for environmental clearance and design readiness by the contractor.	On-going
3	Clear and proactive communication between the DB PIO and farmer/businesses. Provide alternative ingress and egress accessibility to farmers/businesses, and provide flaggers as needed.	In Progress
4	Engage contractor in the design and construction of the two bridge structures in compliance with CDFW.	In Progress

Other Potential Mitigation Actions or Mitigating Factors

Not applicable at this time.

Rating Change Explanation

This was a new risk added to the register.

Appendix 6 – Authority Business Plans

Business Plans

The Authority's bi-annual Business Plan is the central planning document for the development of the system. In this cyclical two year process the Authority updates construction, operating and revenue information as well as strategic direction, risk and funding. The 2018 Business Plan summarizes the progress we have made over the last two years, updates information and forecasts that were presented in the 2016 Business Plan and identifies key milestones and decisions we anticipate making over the next few years. The Authority's governing statutes are established in the California Public Utilities Code sections 185000-185038; Section 185033, as amended by Assembly Bill (AB) 528 (Lowenthal, Chapter 237, Statutes of 2013), lays out the requirements for the Business Plan and they are as follows:

185033.1 (a) The authority shall prepare, publish, adopt, and submit to the Legislature, not later than May 1, 2014, and every two years thereafter, a business plan. At least 60 days prior to the publication of the plan, the authority shall publish a draft business plan for public review and comment. The draft plan shall also be submitted to the Senate Committee on Transportation and Housing, the Assembly Committee on Transportation, the Senate Committee on Budget and Fiscal Review, and the Assembly Committee on Budget. (b) (1) The business plan shall include, but need not be limited to, all of the following elements:

(A) A description of the type of service the authority is developing and the proposed chronology for the construction of the statewide high-speed rail system, and the estimated capital costs for each segment or combination of segments.

(B) A forecast of the expected patronage, service levels, and operating and maintenance costs for the Phase 1 corridor as identified in paragraph (2) of subdivision (b) of Section 2704.04 of the Streets and Highways Code and by each segment or combination of segments for which a project level environmental analysis is being prepared for Phase 1. The forecast shall assume a high, medium, and low level of patronage and a realistic operating planning scenario for each level of service.

(C) Alternative financial scenarios for different levels of service, based on the patronage forecast in subparagraph (B), and the operating break-even points for each alternative. Each scenario shall assume the terms of subparagraph (J) of paragraph (2) of subdivision (c) of Section 2704.08 of the Streets and Highways Code.

(D) The expected schedule for completing environmental review, and initiating and completing construction for each segment or combination of segments of Phase 1.

(E) An estimate and description of the total anticipated federal, state, local, and other funds the authority intends to access to fund the construction and operation of the system, and the level of confidence for obtaining each type of funding.

(F) Any written agreements with public or private entities to fund components of the high-speed rail system, including stations and terminals, and any impediments to the completion of the system.

(G) Alternative public-private development strategies for the implementation of Phase 1.

(H) A discussion of all reasonably foreseeable risks the project may encounter, including, but not limited to, risks associated with the project's finances, patronage, right-of- way acquisition, environmental clearances, construction, equipment, and technology, and other risks associated with the project's development. The plan shall describe the authority's strategies, processes, or other actions it intends to utilize to manage those risks. (2) To the extent feasible, the business plan should draw upon information and material developed according to other requirements, including, but not limited to, the pre-appropriation review process and the pre-expenditure review process in the Safe, Reliable High-Speed Passenger Train Bond Act for the 21st Century pursuant to Section 2704.08 of the Streets and Highways Code. The authority shall hold at least one public hearing on the business plan and shall adopt the plan at a regularly scheduled meeting. When adopting the plan, the authority shall take into consideration comments from the public hearing and written comments that it receives in that regard, and any hearings that the Legislature may hold prior to adoption of the plan.

Source: California Public Utilities Code Section 185033

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From: Barnes, Juliana (FRA)
To: "Malone, Desiree@HSR"
Cc: Everett, Lynn (FRA); Ouhamou, Mariam (FRA); Gilliland, Barbara(PB)@HSR; Hawkes, Ryan@HSR; mlrule@transystems.com
Subject: Feedback: Q3-18 Grant Deliverables (CVPFP)
Date: Friday, February 08, 2019 2:33:00 PM
Attachments: 19-02-05_2018 CVPFP (FRA Review).pdf

Hi Desi,

FRA received CHSRA's 2018 Central Valley Program Financial Plan (CVPFP), dated September 2018, on 10/01/18. After review of the deliverable, FRA has enclosed comments in the attached document to CHSRA (*ref. "19-02-05 2018 CVPFP (FRA Review)").*

Thank you,

Juliana Barnes, PMP
Project Manager
Office of Program Delivery (RPD-15)
Federal Railroad Administration
801 I St., Suite 466
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Cell: 916-215-9115

From: Malone, Desiree@HSR [mailto:Desiree.Malone@hsr.ca.gov]
Sent: Monday, October 01, 2018 12:44 PM
To: Barnes, Juliana (FRA) <juliana.barnes@dot.gov>
Cc: Everett, Lynn (FRA) <lynn.everett@dot.gov>; Ouhamou, Mariam (FRA) <Mariam.Ouhamou@dot.gov>; Rooney, Barbara@HSR <Barbara.Rooney@hsr.ca.gov>; Gilliland, Barbara(PB)@HSR <barbara.gilliland@hsr.ca.gov>; Hawkes, Ryan@HSR <Ryan.Hawkes@hsr.ca.gov>
Subject: Q3-18 Grant Deliverables

Hi Juliana,

Attached in this email are the following deliverables for Q3-18 - due on October 1, 2018:

- Q3-18 Transmittal #07395
- 2018 Annual Work Plan (AWP)
- 2018 Program Management Plan (PMP)
- 2018 Central Valley Project Funding Plan (CVPFP)
- CHSTP Design Manual (link to this document is located in the transmittal)

Additionally, the transmittal contains links to reexaminations loaded on the FRA-accessible SharePoint site.

K0254

CHSRA delivered the 2018 Central Valley Project Financial Plan (CVPFP), dated September 2018, to FRA on 10/01/18. FRA's review comments follow.

Central Valley Project Financial Plan:

- Required Components (ARRA Grant Amendment 6):
    - CHSRA will provide for FRA review and approval a Financial Plan for the FCS (FCS Financial Plan) that demonstrates CHSRA has secured firm commitments of all funding (other than that provided through the grant agreements) required to complete construction of the FCS. The financial plan will provide (in year-of-expenditure dollars) finalized annual projections for the sources and uses of all funds, during the development and construction phases of the FCS and a detailed assessment of financial risks facing the FCS during both the construction (including risks such as capital cost overruns, revenue shortfalls, and maintenance cost overruns), along with proposed actions for mitigating or accommodating such risks (including assessment of additional funding sources available to compensate for potential capital financing shortfalls). The FCS Financial Plan will discuss and incorporate the Interim Use Reserve.
- Key FRA Review Comments from Prior Review:
    - CHSRA needs to develop the document by:
        - Drafting a CVPFP that is a more comprehensive, detailed document than the quarterly financial reports (budget and FCP). The CVPFP provides CHSRA an opportunity to detail how it determines cost in relation to scope and schedule that the quarterly financial reports do not afford. It demonstrates the methodology taken into account to develop the budget and FCP.
        - Similar to last year, while requirements CHSRA has to meet are discussed also highlight how requirements are met.
        - In addition, ensuring that comments are addressed in the budget and FCP as they are key inputs into the CVPFP.
- Comments:
    - FRA rejects the current version of the Central Valley Project Financial Plan as the document does not adequately address FRA's past review comments. In addition, as indicated in prior rejections of the Quarterly Budget and Funding Contribution Plan, the schedule and level of expenditure in the CVPFP do not correlate with observed levels of CHSRA achievable performance.
    - Please further develop the document in the upcoming submission by considering the following:
        - CHSRA must include a schedule and budget that aligns with observed levels of performance and address the comments above and submitted the prior year.
        - A methodology explaining the way the cost estimates were generated would provide FRA with an understanding of how CHSRA is going to complete grant deliverables on budget and schedule.
- Items of concern:
    - *From the prior review the following items were of concern:*
        - The 2017 CVPFP indicated that track work (i.e. CP 5 or TS 1) would start on the FCS in 2021, which called into question whether CHSRA would finish track work prior to end of the period of performance (2017 CVPFP, PDF pg 12).

        - In the 2018 CVPFP this information was omitted and not given further consideration.
    - The 2017 CVPFP also noted that "The [FCS] is not contemplated to operate a revenue service upon initial completion; instead it will be used as a test track until it is connected to the rest of the Silicon Valley to Central Valley line in 2025." Independent utility would be met after the period of performance. (2017 CVPFP, PDF pg 33).
        - In the 2018 CVPFP this information was omitted and not given further consideration.
- *From this year's review the following items are of concern:*
    - Cost Management (2018 CVPFP, PDF pg 19): "The cost forecasts for CP 1, CP 2-3, CP 4, and SR-99 Realignment Project . . . are based on approved cost-loaded schedules. These cost forecasts are monitored monthly for variances between the planned value and the earned value."
        - Are all Design-Builder (DB) approved cost-loaded schedules aligned with the Program Baseline schedule? How does CHSRA then monitor DB progress and to which schedule?
    - Revised Baseline (2018 CVPFP, PDF pg 31): "The Authority is currently working on a revised program baseline capital cost estimate, which will be presented in the March 2019 Program Update to the California Legislature"
        - The Authority invited FRA to participate in its Revision 1 exercise of the 2018 Program Baseline in July 2018. FRA attended five workshop sessions on the environmental sections and CPs 1 through 4. FRA has yet to receive information on the remaining grant's scope of work and the Baseline exercise (e.g. CP 5, RDP costs, detailed Baseline schedule and budget, etc.). FRA is unaware of the exercise status and its results. What is the status of the exercise? Is the above statement still valid?